

ATLAS OF KENAI RIVER WATERSHED DEVELOPMENT

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[Supplemental material for THE HISTORY OF LAND USE ON ALASKA'S KENAI RIVER  
AND ITS IMPLICATIONS FOR SUSTAINING SALMON, a doctoral dissertation]

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## **Introduction**

The purpose of this document is to include additional maps to complement those found in the dissertation text. This allows interested readers to examine more detailed features of the Kenai River Watershed land-use history.

Most of the maps were created by the author using ESRI's ArcMap 10.0 geographic information system (GIS) software provided by the University of Alaska. Data displayed on the maps came from the Kenai Peninsula Borough, the US Geological Survey, and the Alaska Bureau of Land Management. Metadata for the GIS files are listed in Appendix D.

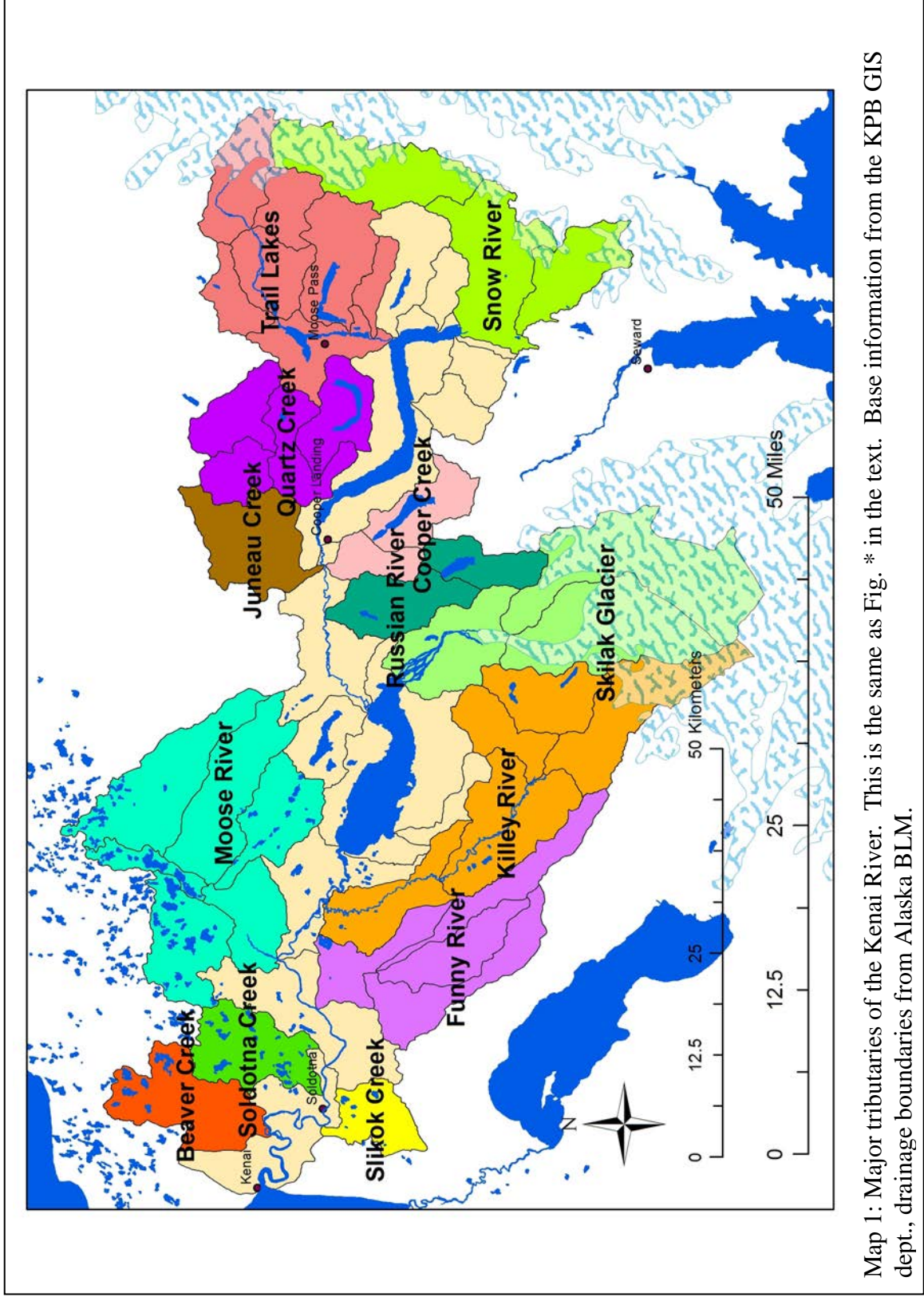
Also included are copies of government maps in the public domain depicting the Kenai River area. They were copied from online documents or from printed material at the Elmer E. Rasmuson Library and the Keith B. Mather Library of the University of Alaska Fairbanks.

The analysis of development focused on the lower river, below Skilak Lake (river miles 0-51) during the years 1947 to 2005. The main source of information was the parcel files kept by the Kenai Peninsula Borough GIS department to service property tax assessments. I augmented and corrected that information using historical sources such as aerial imagery, interviews, and homesteading records. I classified parcels as developed if the borough classified them as developed or if I identified 20<sup>th</sup>-century structures (more than 200 ft<sup>2</sup>, 18.6 m<sup>2</sup> in size), parking lots, or gravel pits on them. Parcels were color-coded by the historical period (see Ch. 5) in which development first occurred.

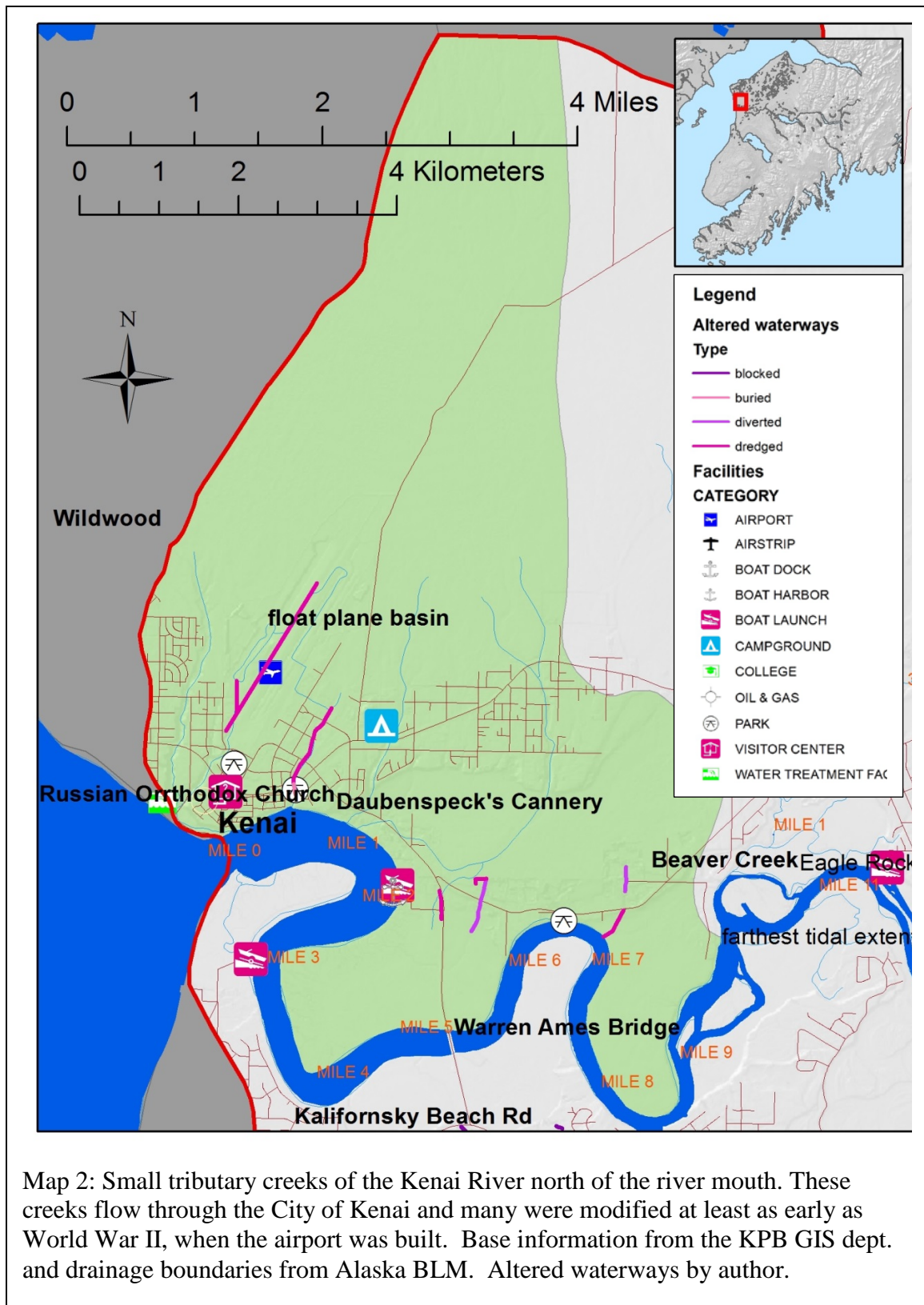
Land-use information can be displayed in several ways. To convey as much information as possible, the main series of maps display development in three complementary ways:

- Parcel polygon: This approach emphasizes large lots, even if they are only partially developed, and downplays very small lots, which are difficult to see on areawide maps.
- Parcel point: Using GIS tools, I created a layer in which a central point (centroid) represented each developed parcel. This emphasized small lots, which showed as clusters of dots, and downplayed large parcels that might be developed over wider areas or on portions away from the center dot.
- Density: Using GIS tools, I created a raster layer showing areas where multiple developed parcels occurred within 0.25 mi (0.4 km) of each other. This emphasized areas where land was subdivided and developed densely while downplaying sprawling low-density rural development.

**Part One: Land-use maps by S. Loshbaugh**

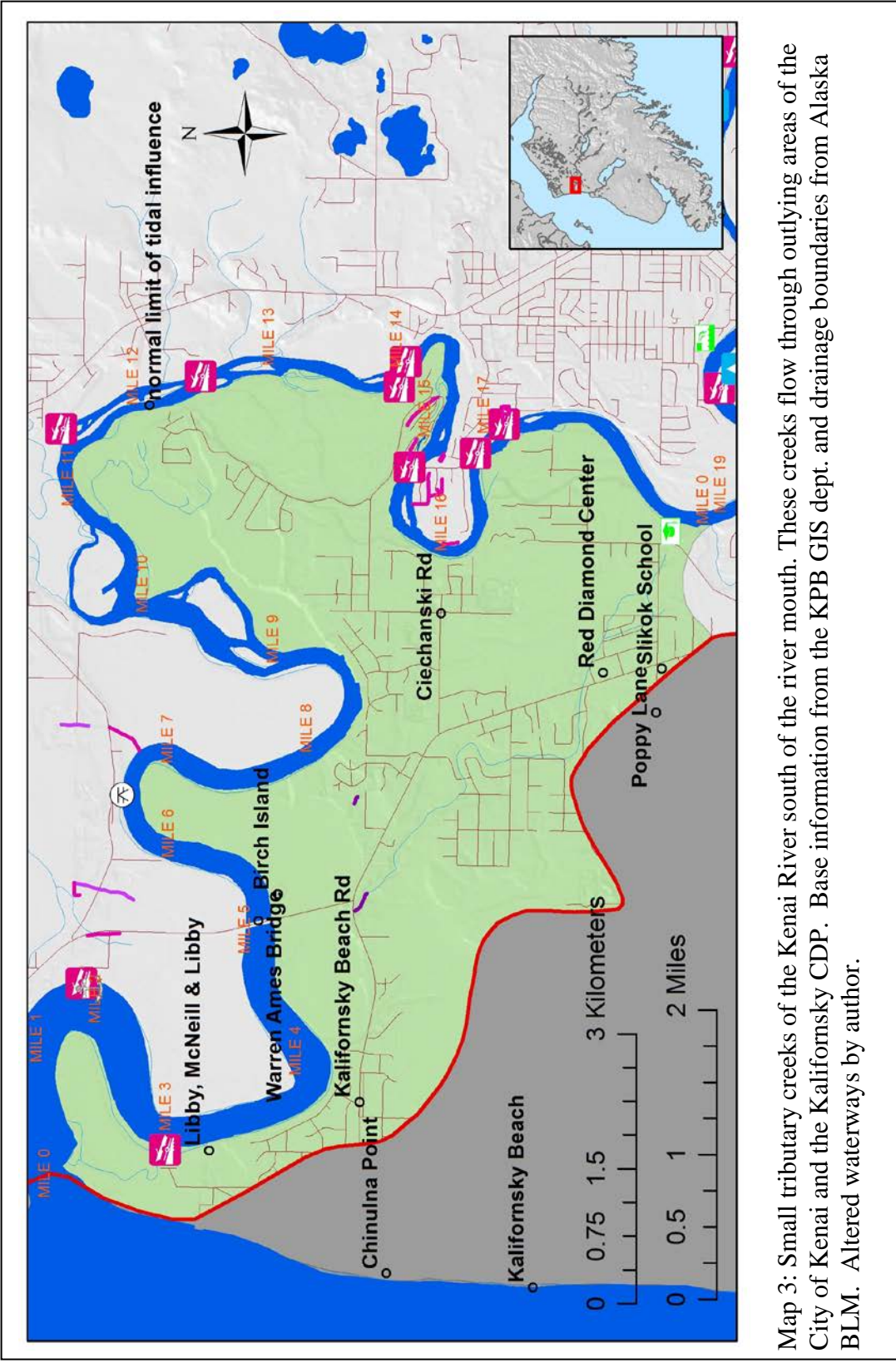


Map 1: Major tributaries of the Kenai River. This is the same as Fig. \* in the text. Base information from the KPB GIS dept., drainage boundaries from Alaska BLM.

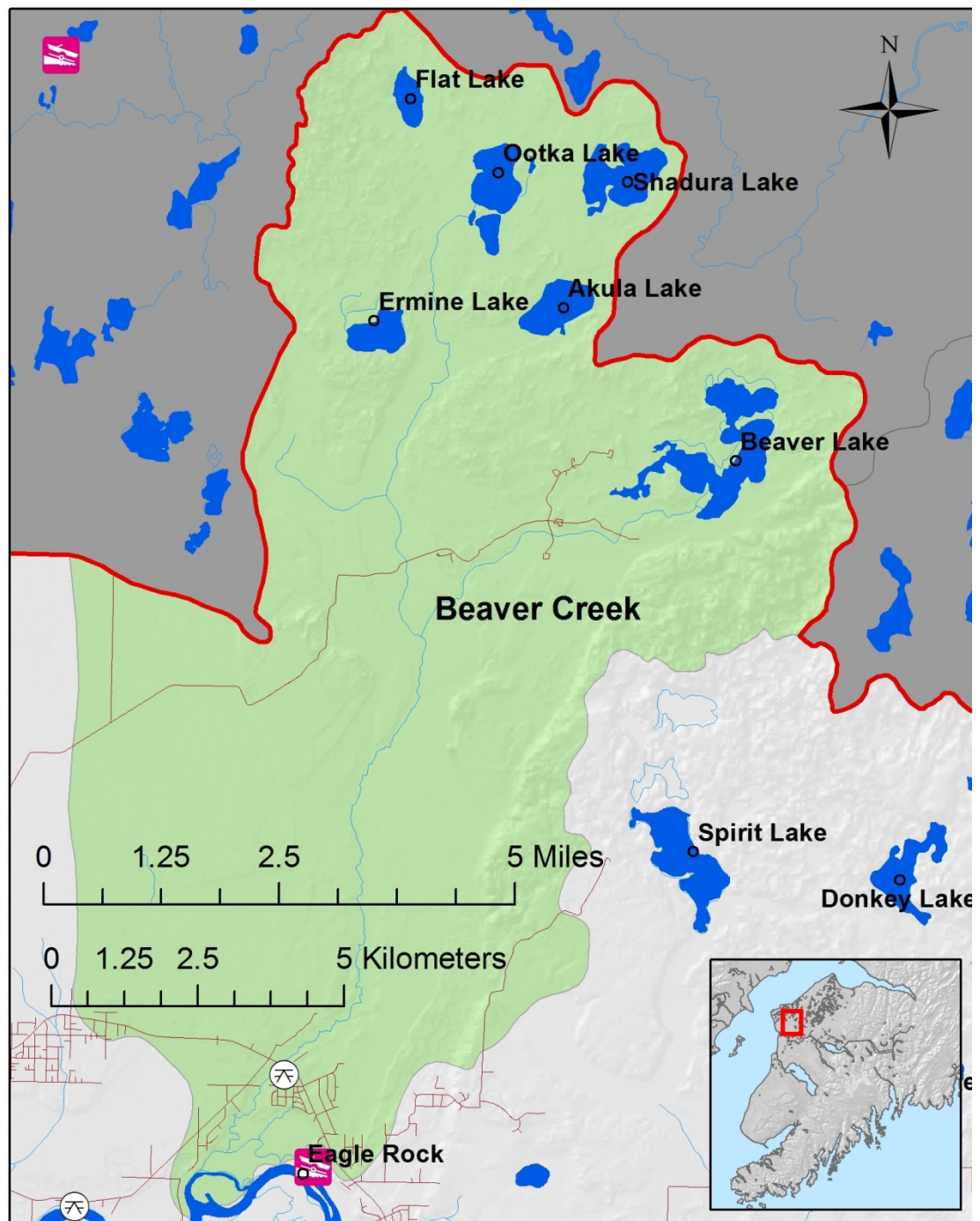


Map 2: Small tributary creeks of the Kenai River north of the river mouth. These creeks flow through the City of Kenai and many were modified at least as early as World War II, when the airport was built. Base information from the KPb GIS dept. and drainage boundaries from Alaska BLM. Altered waterways by author.

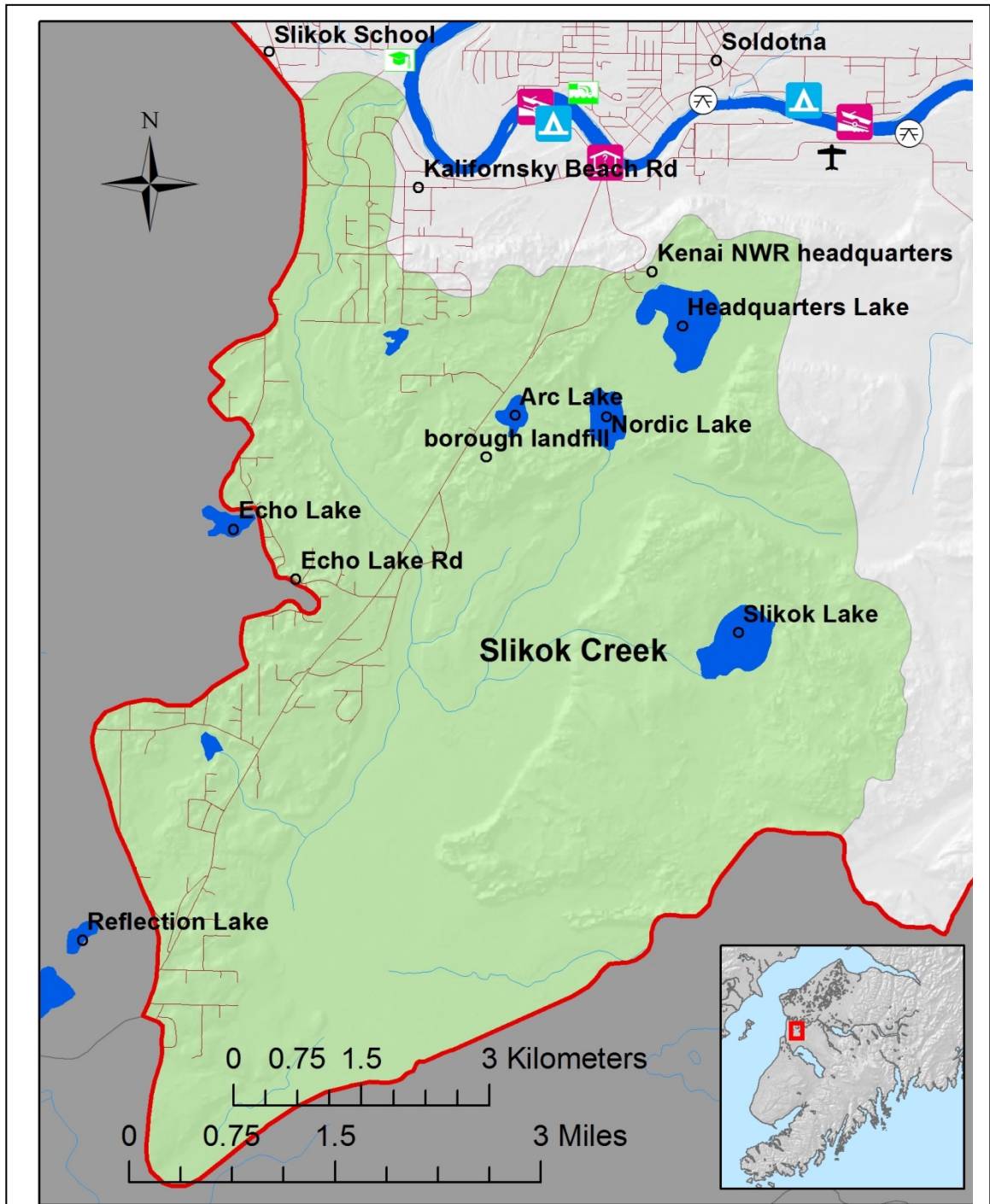






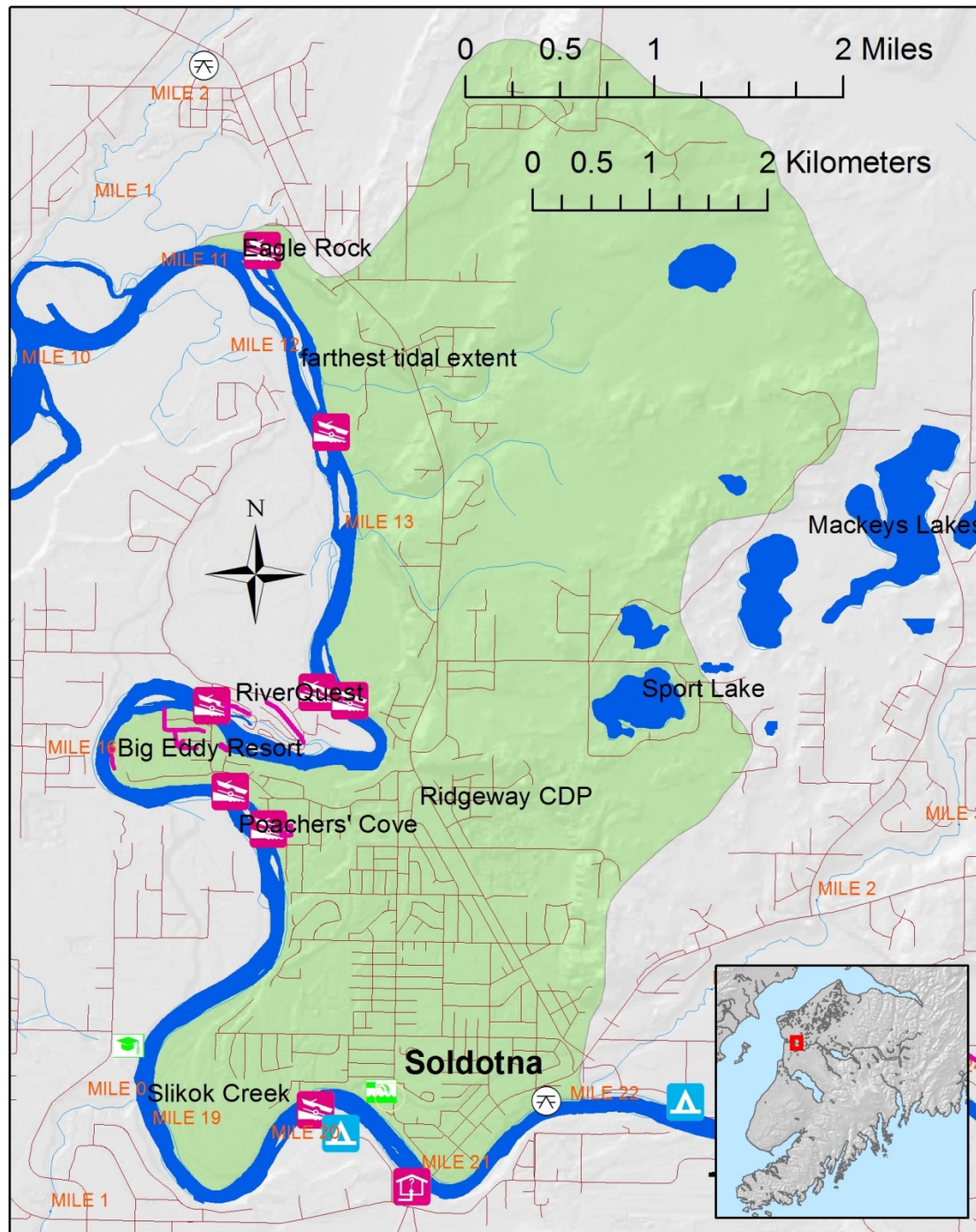


Map 4: Beaver Creek drainage. The creek flows from wetlands in the Kenai National Wildlife Refuge south through the east side of the City of Kenai and enters the main river in the upper estuary. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.

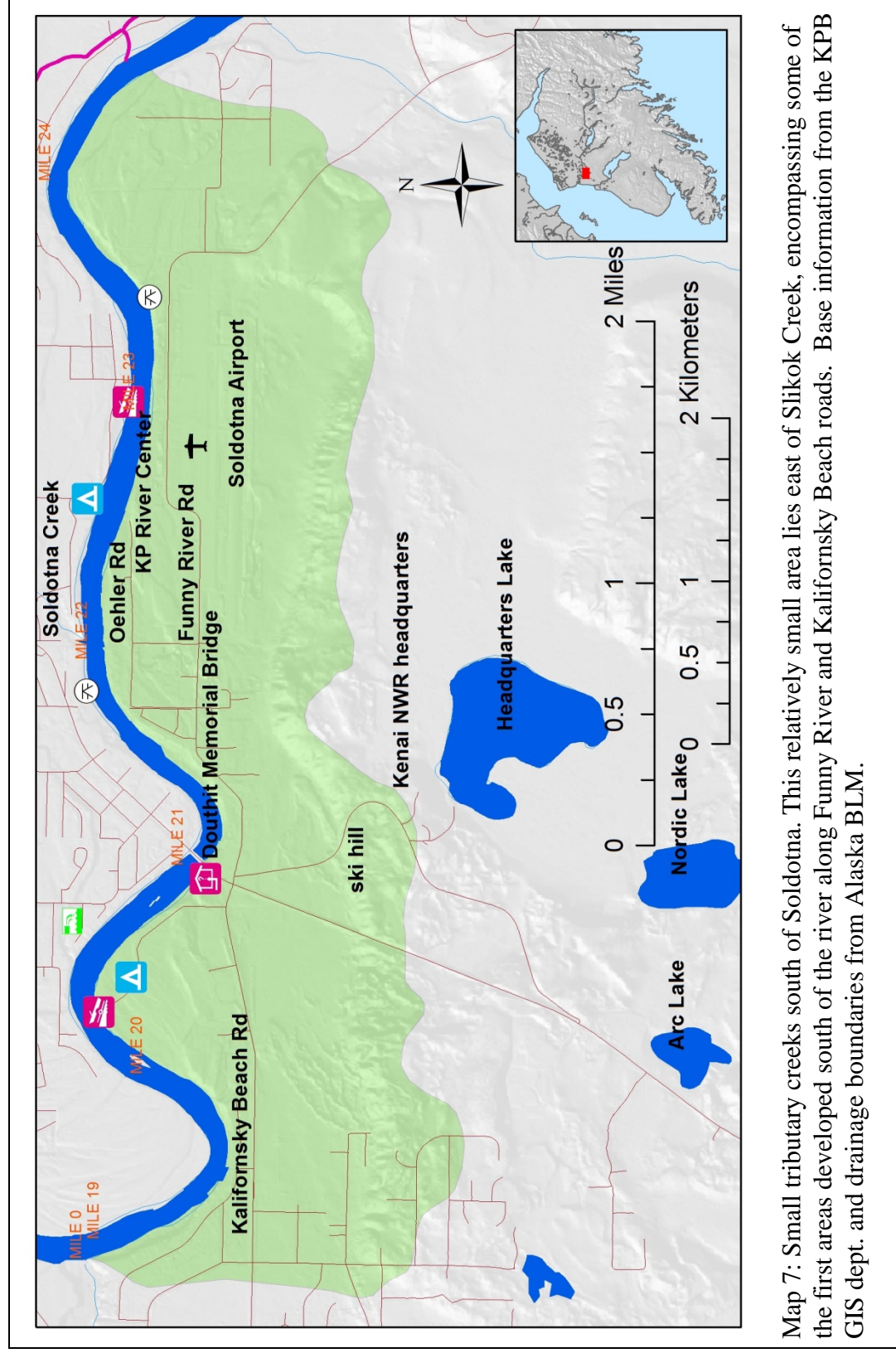


Map 5: Slikok Creek drainage. The creek flows from wetlands in the Kenai National Wildlife Refuge (abutting the Kasilof River watershed) northwest through an exurban residential area around Kalifornsky Beach and Echo Lake roads. The lowest part of the creek lies within Soldotna city limits and is a state recreation area. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.

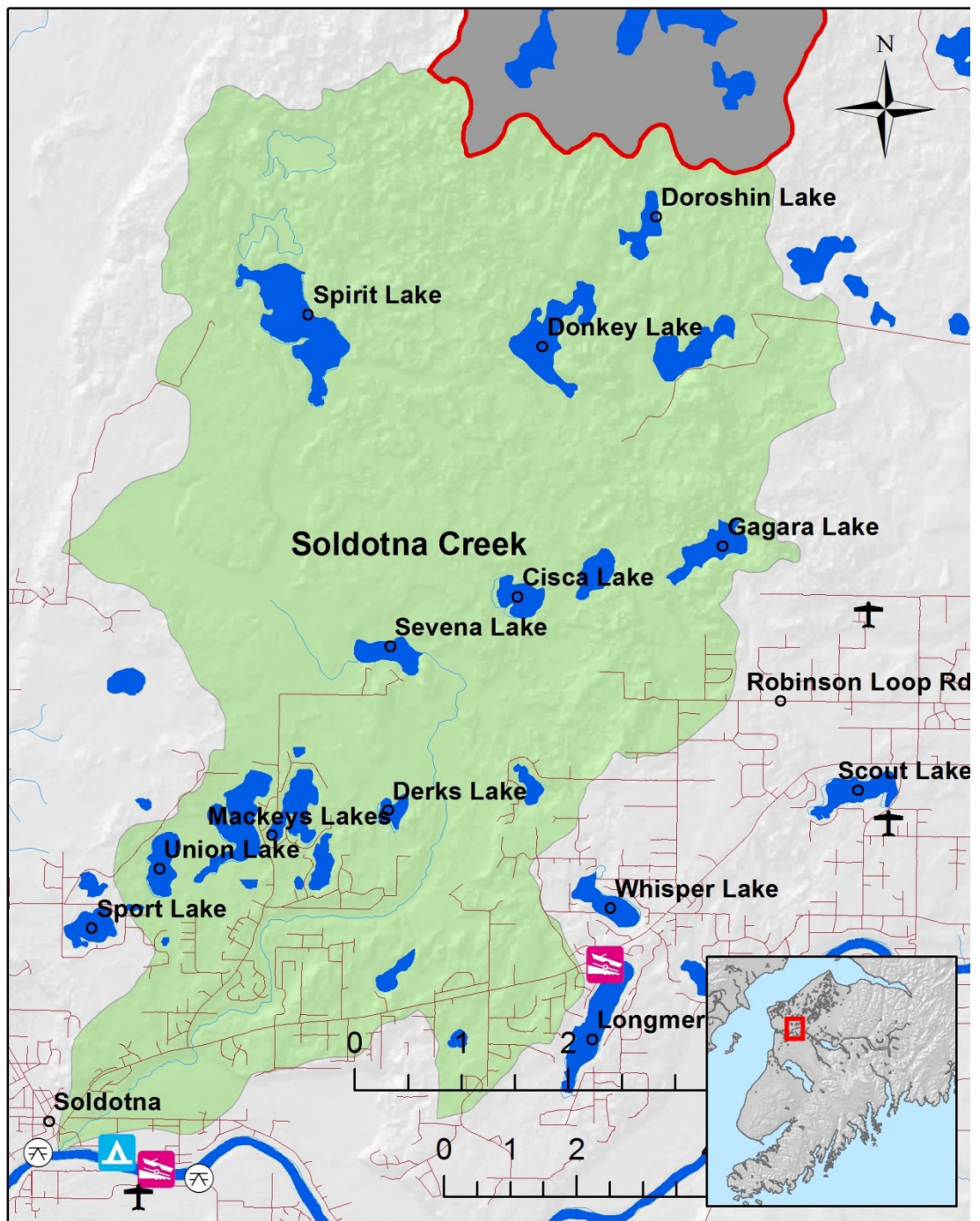




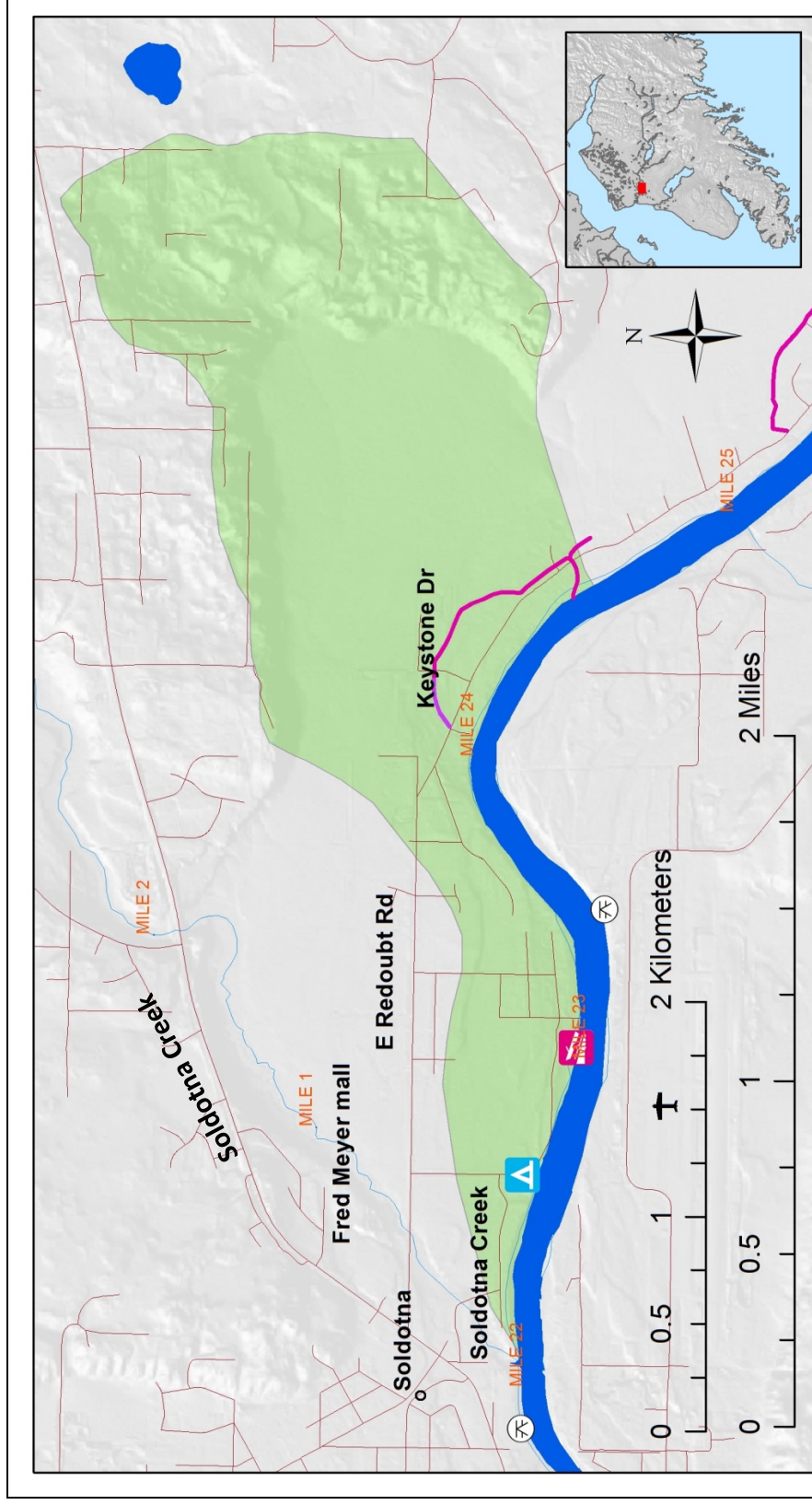
Map 6: Small creeks in Ridgeway and Soldotna. These creeks, often unnamed, flow under the Kenai Spur Highway and through one of the most densely developed parts of the watershed, including Big Eddy and most of Soldotna. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.





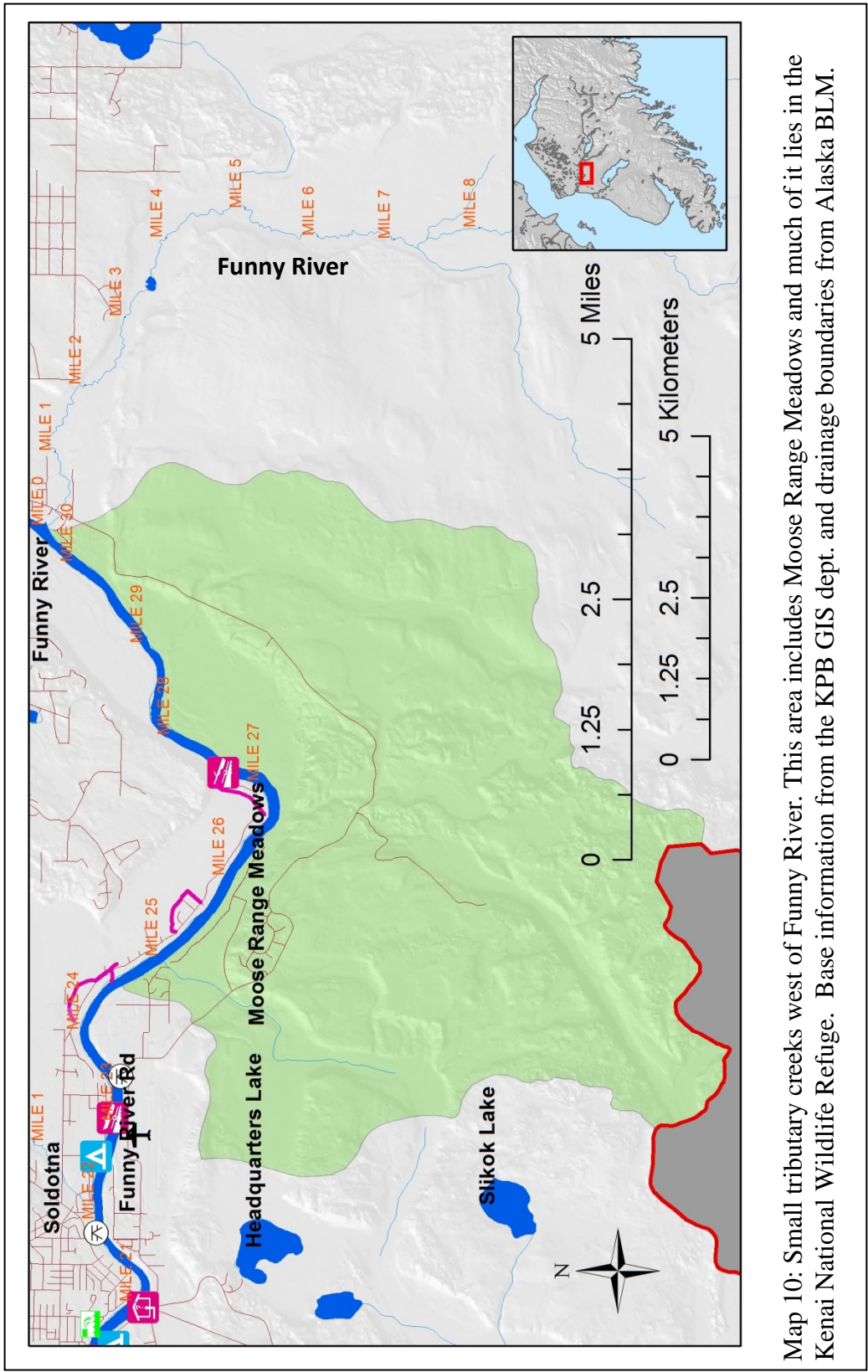


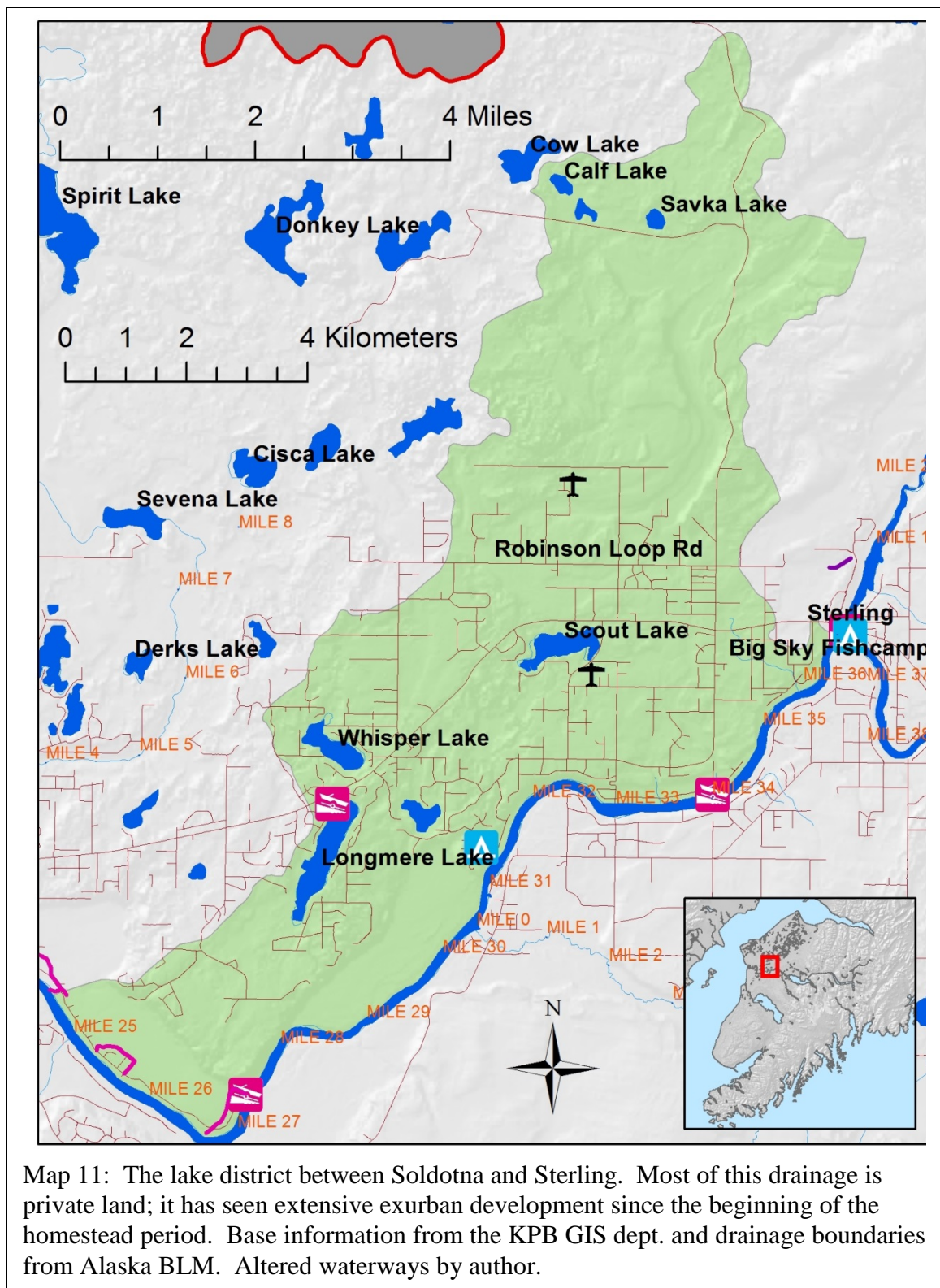
Map 8: Soldotna Creek drainage. Nearly all of this drainage is private land; development in its headwaters began at Mackey Lakes in 1948. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.



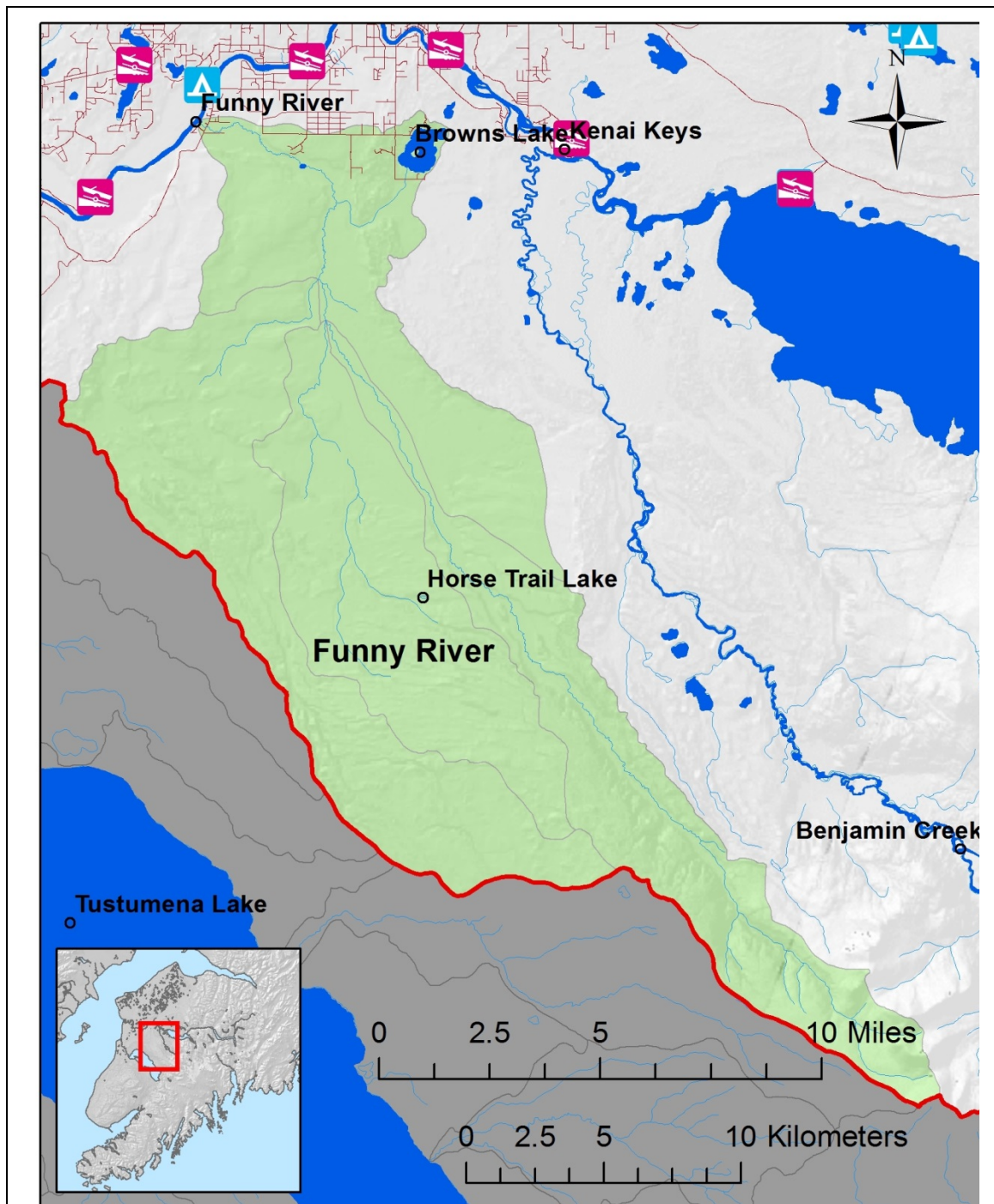
Map 9: Small tributary creeks east of Soldotna. This relatively small area is low, often boggy, land accessed via East Redoubt Street. The area is popular for angler access. It includes Soldotna's Swiftwater Park and canals off Keystone Drive dating from the 1970s. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM. Altered waterways by author.



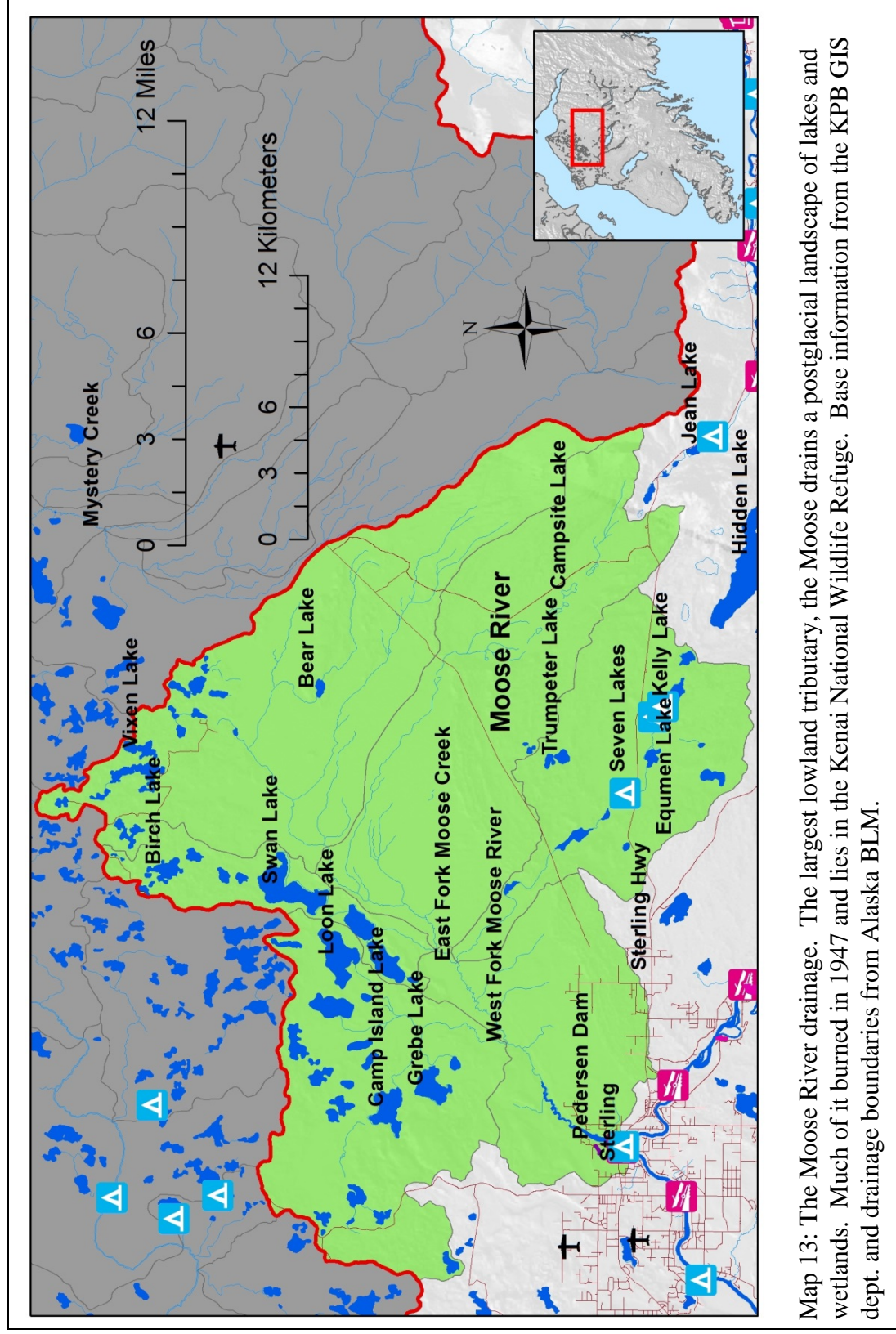




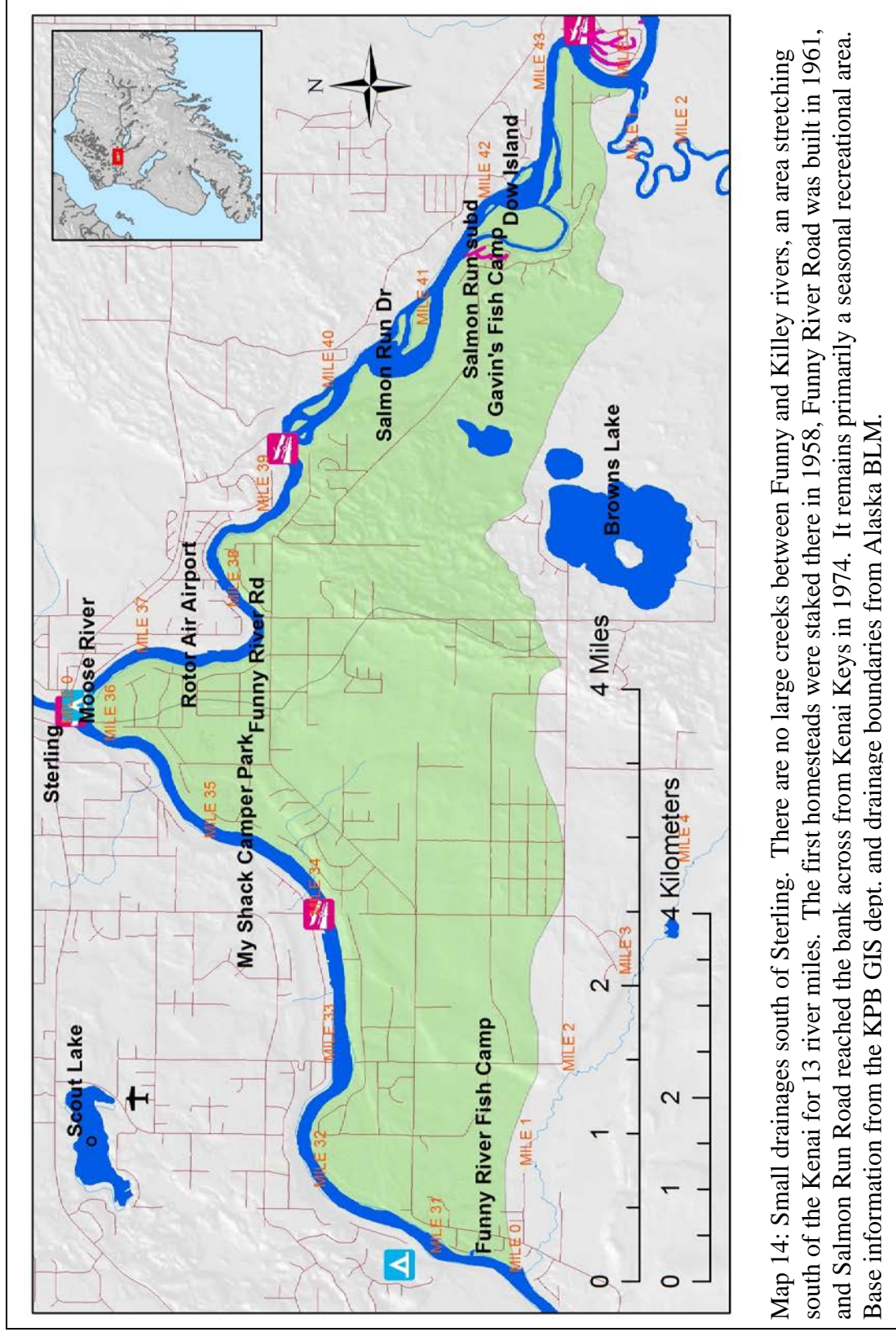




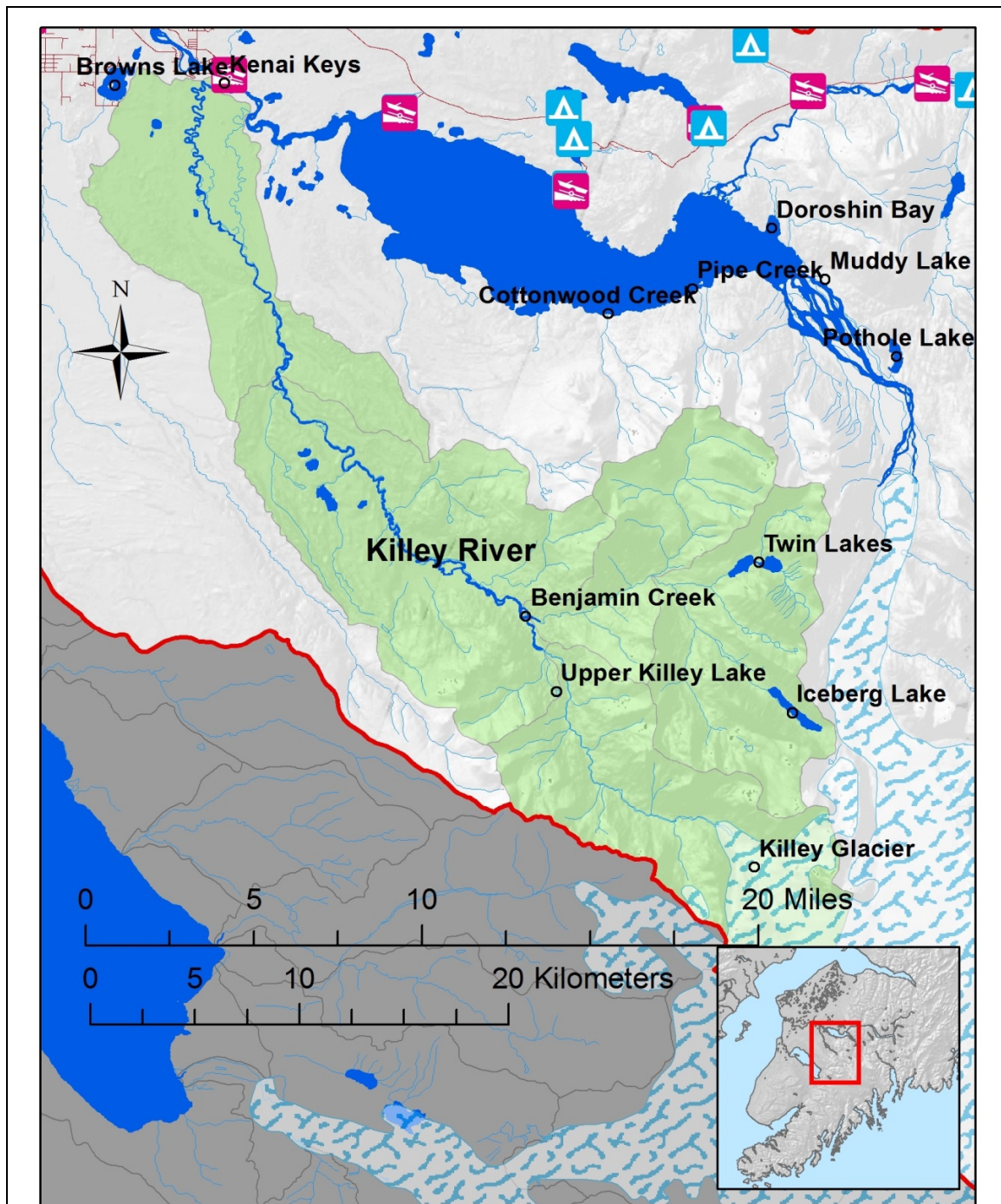
Map 12: The Funny River drainage. The river originates in the highlands known as the Tustumena Bench within the Kenai National Wildlife Refuge. There was some farming in the lower drainage, but little development occurred until Funny River Road was built in 1961. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.





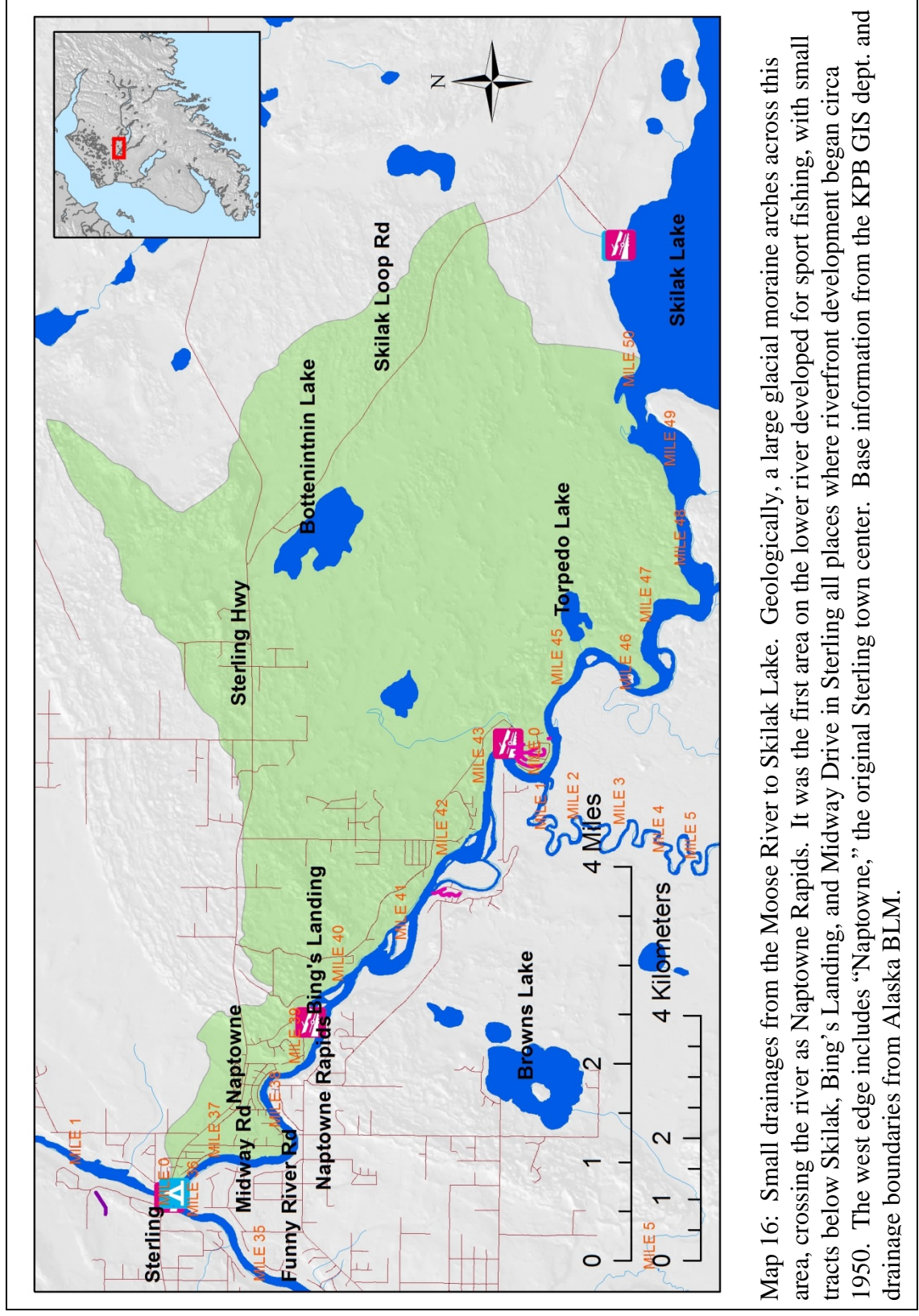


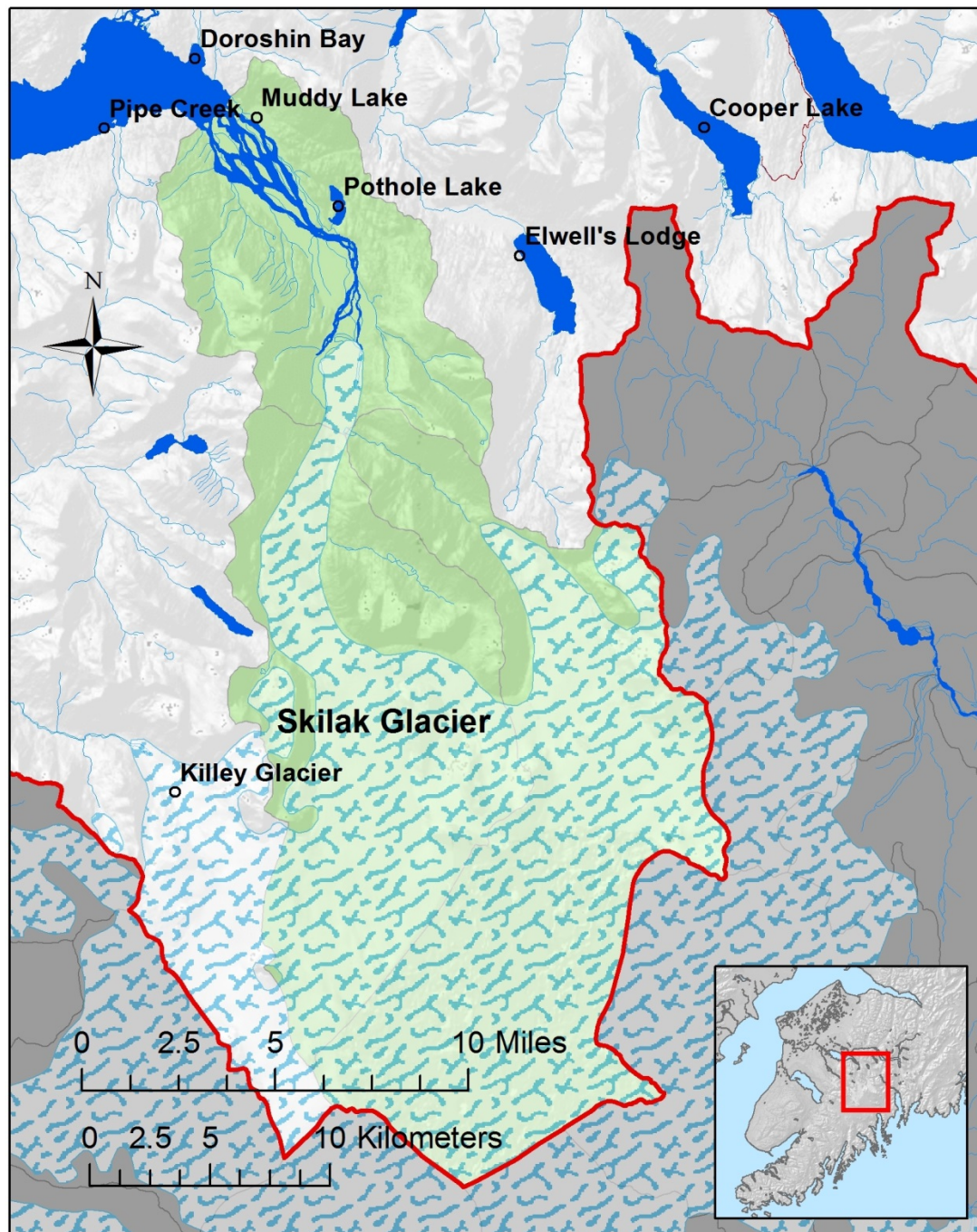
Map 14: Small drainages south of Sterling. There are no large creeks between Funny and Killey rivers, an area stretching south of the Kenai for 13 river miles. The first homesteads were staked there in 1958, Funny River Road was built in 1961, and Salmon Run Road reached the bank across from Kenai Keys in 1974. It remains primarily a seasonal recreational area. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.



Map 15: Killey River drainage. Flowing from the Harding Icefield, it is the only glacial tributary to the lower river and carries a heavy sediment load. The lower reaches are unstable, with two changeable confluences with the mainstem. It is the least developed lower river drainage and lies largely within the Kenai National Wildlife Refuge. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.

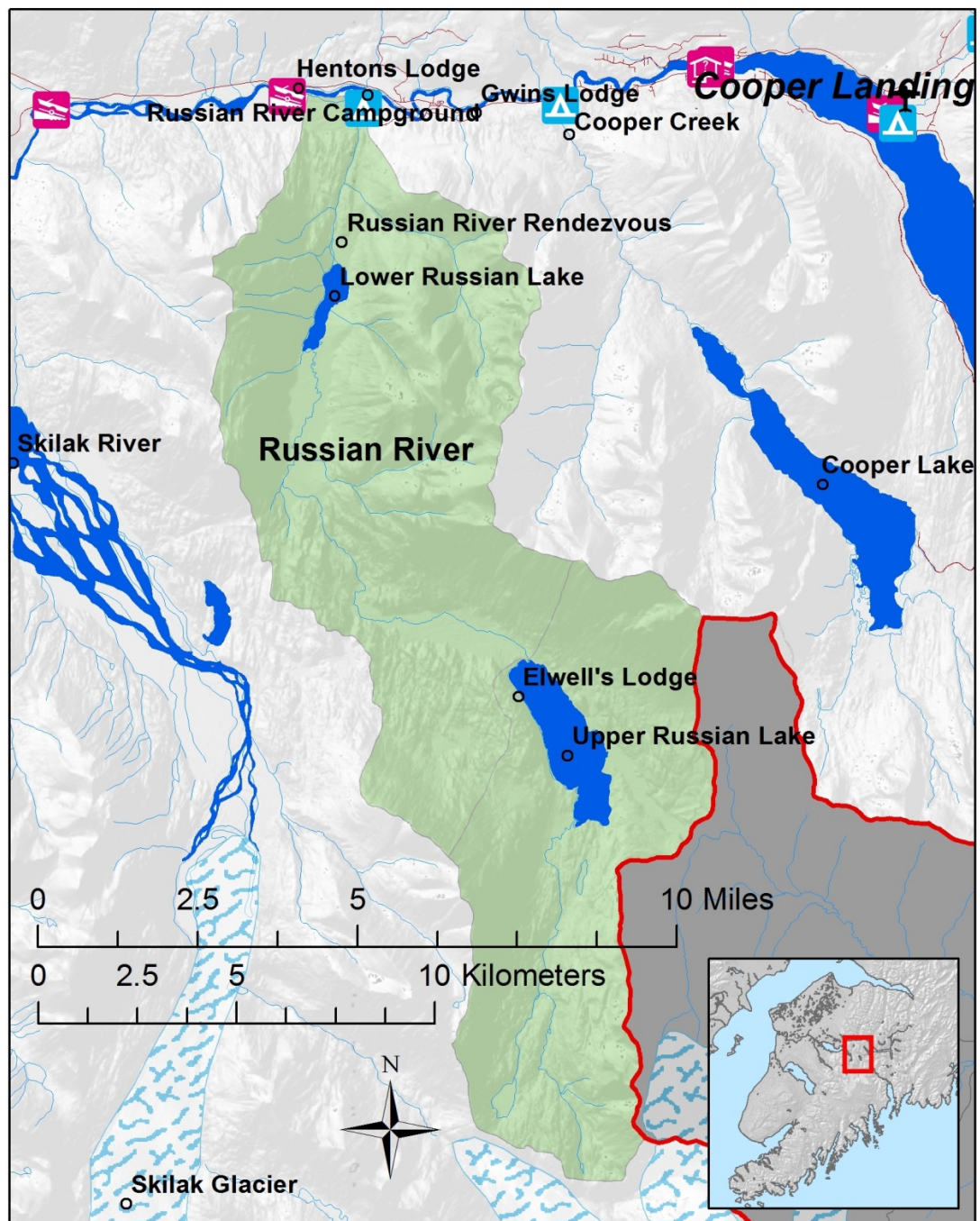




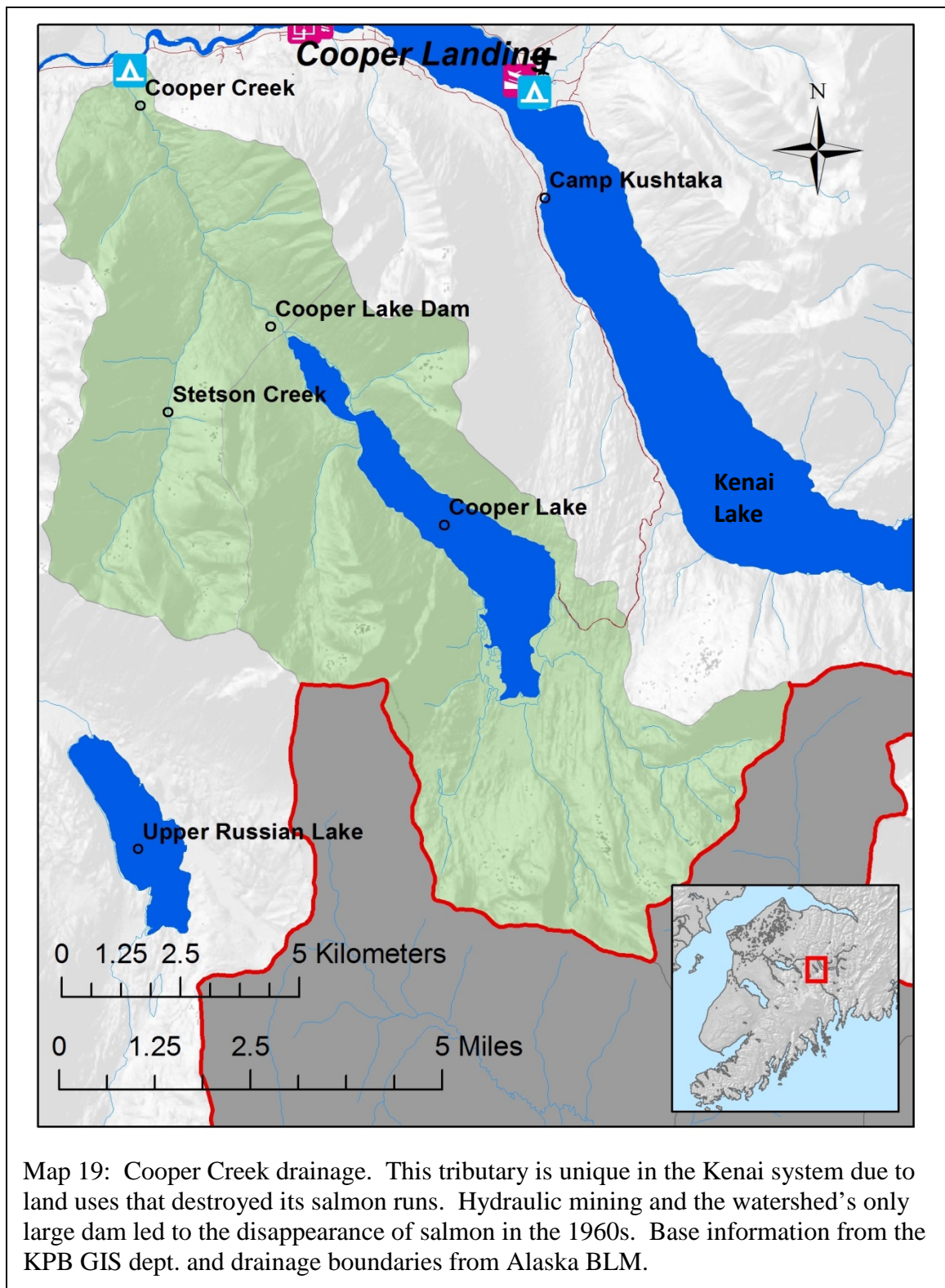


Map 17: Skilak River drainage. Fed by the Harding Icefield, the river is one of the largest source for both water and sediment in the Kenai system. Some settlement occurred on the lake shore, but the river valley is uninhabited. The glacier has been retreating since measurements began. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.

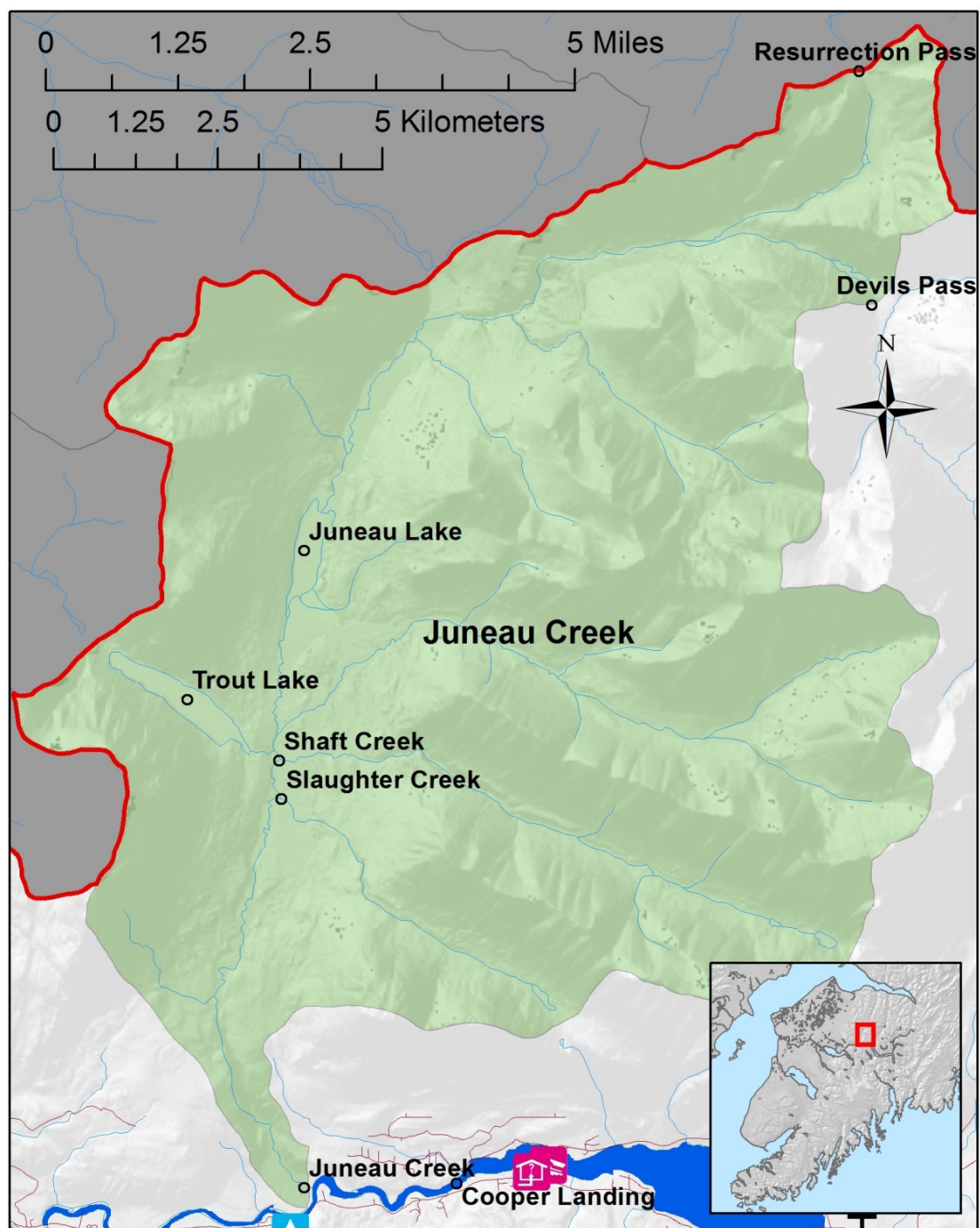




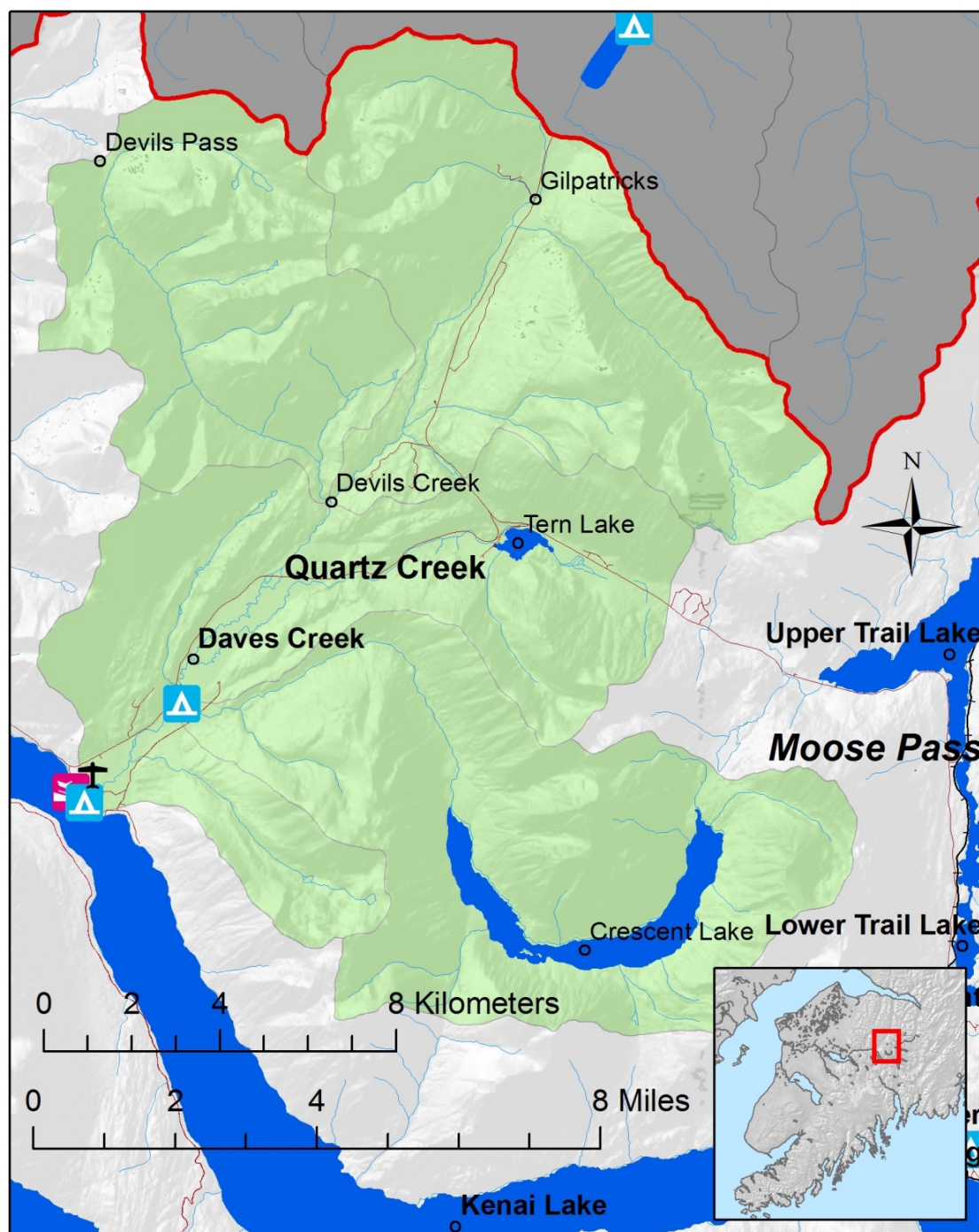
Map 18: Russian River drainage. This tributary is famous for its fish production, especially sockeye. The river's lodges no longer exist, but it remains popular with anglers, hikers, and campers. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.





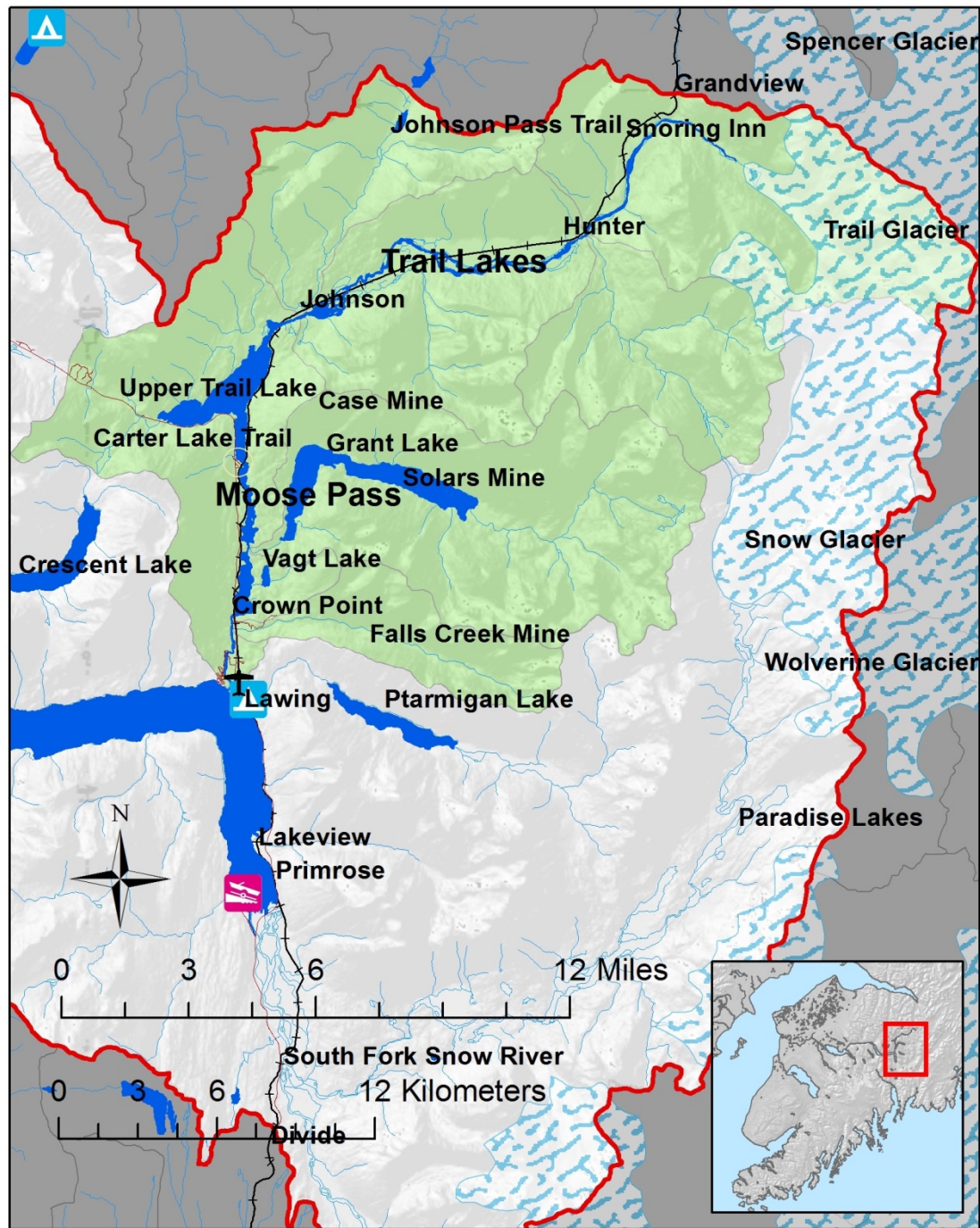


Map 20: Juneau Creek drainage. This tributary remains mostly wild. It is known for its hiking trails and scenic waterfall. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.

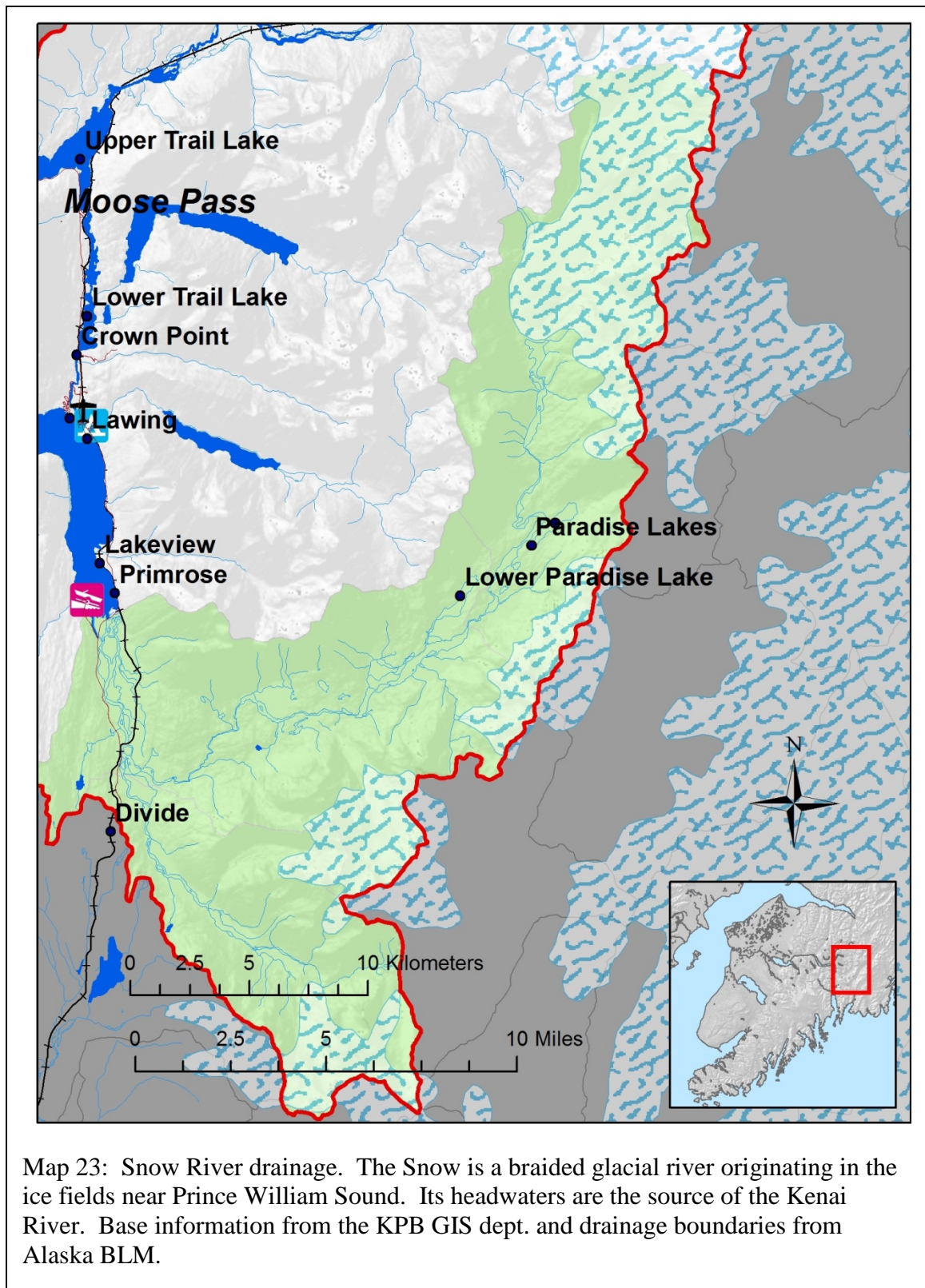


Map 21: Quartz Creek drainage. The Sterling and Seward highways run through this drainage, and their construction created Tern Lake. Recent projects aim to restore its damaged salmon habitat. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.

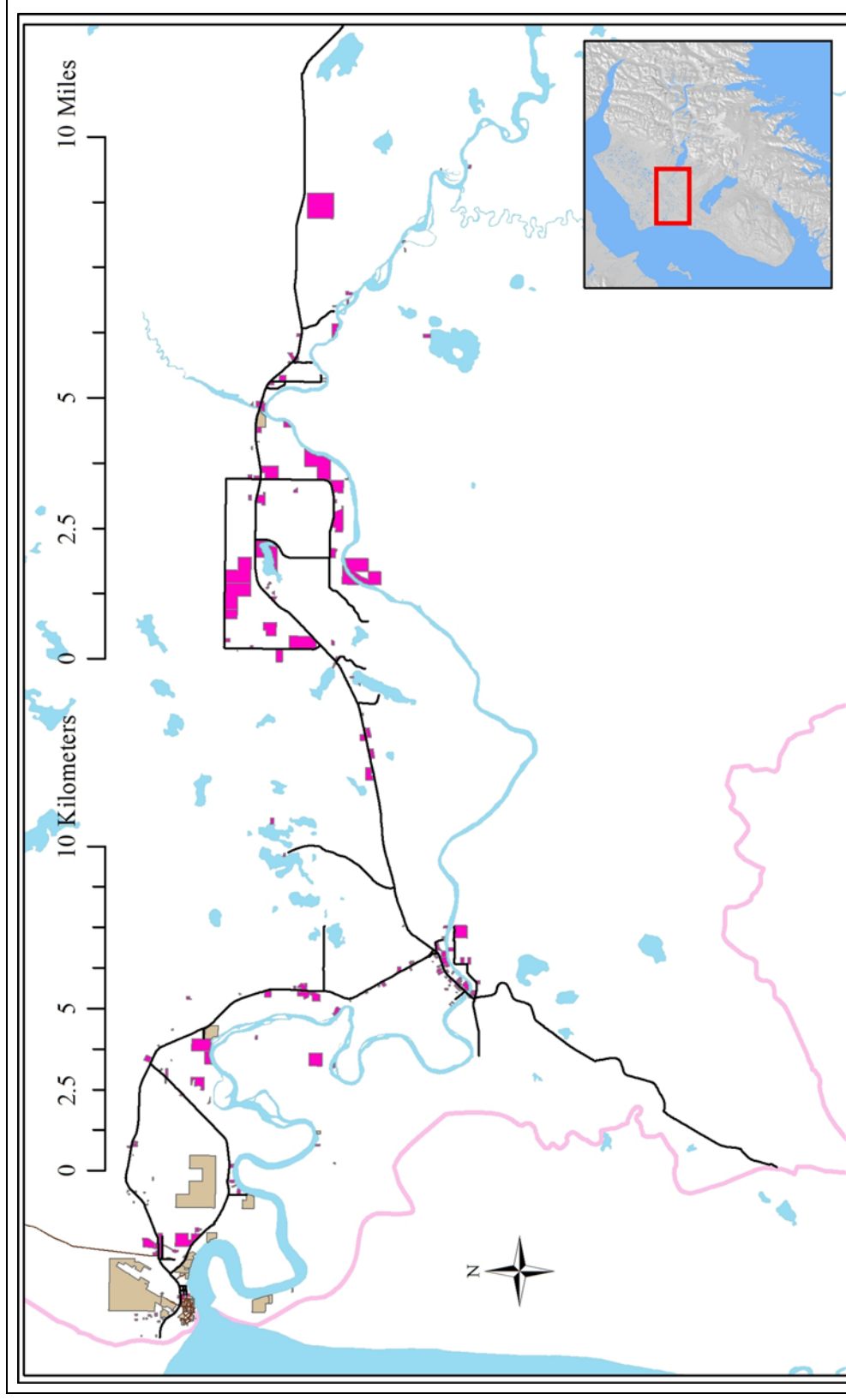




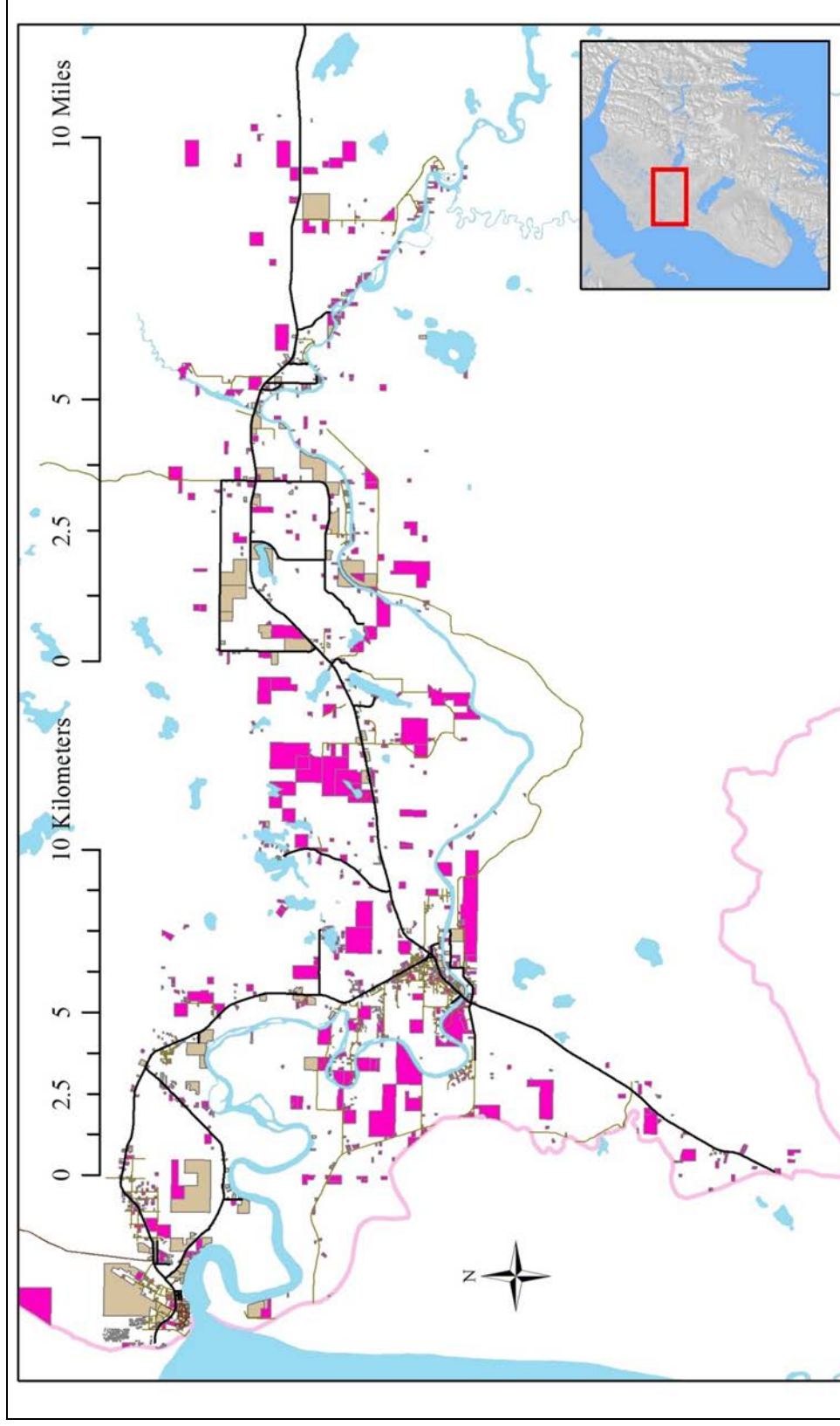
Map 22: Trail Lakes drainage. Upper and Lower Trail Lakes connect through mountain valleys and feed water from the glaciers, snow, and slopes into Kenai Lake. The Alaska Railroad, the hamlet of Moose Pass, and the Seward Highway were built along their course early in the 20<sup>th</sup> century. Base information from the KPB GIS dept. and drainage boundaries from Alaska BLM.



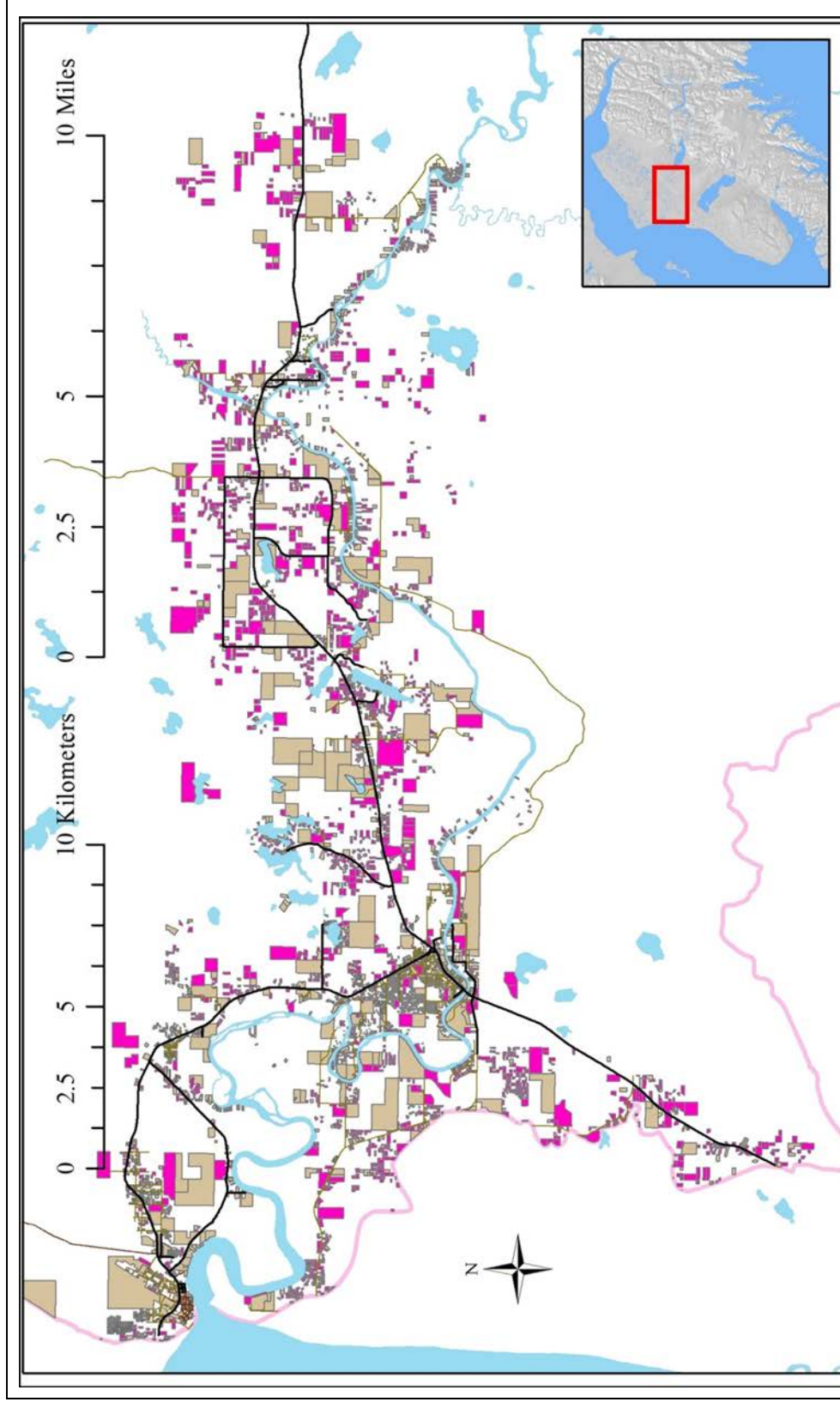




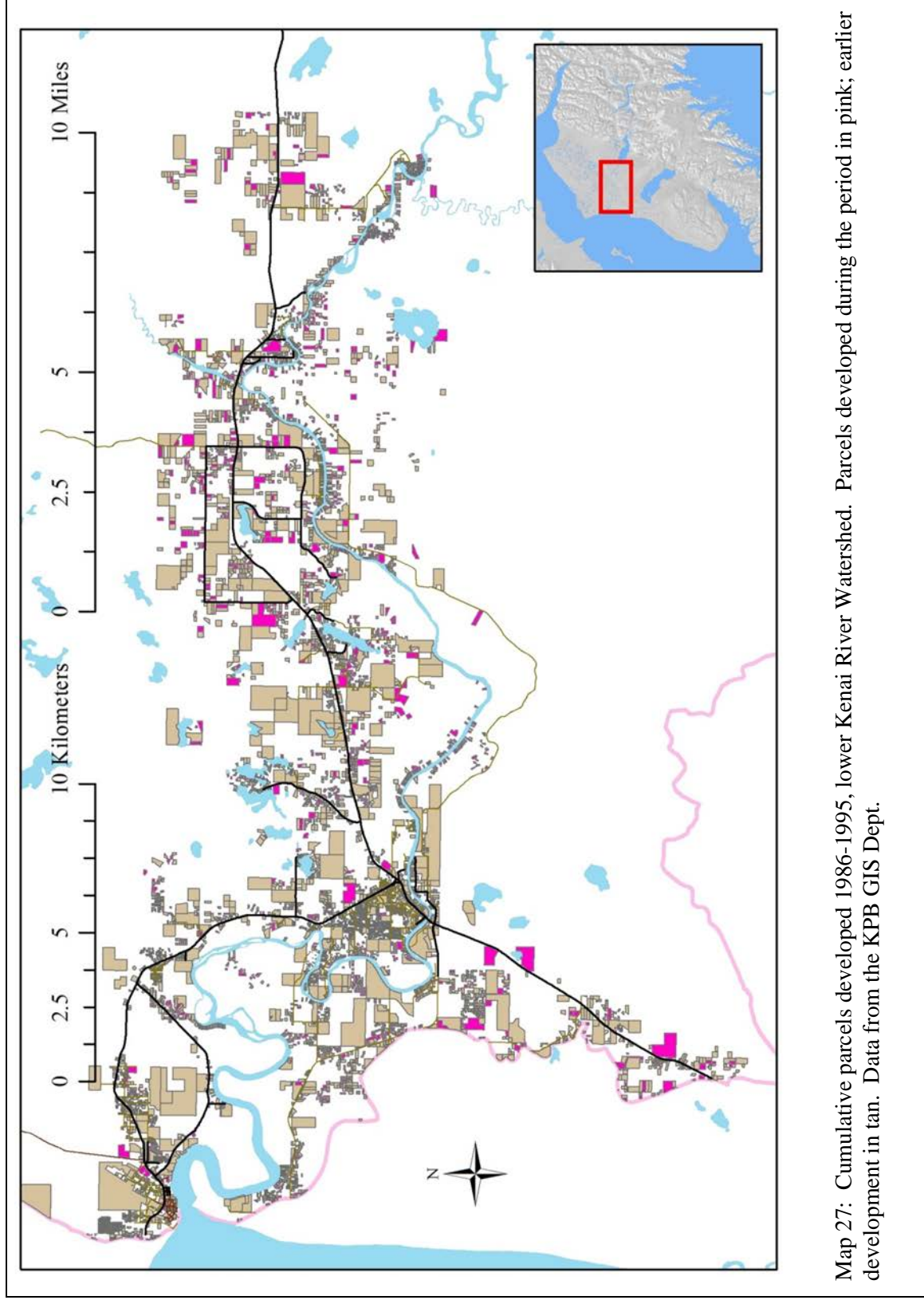
Map 24: Cumulative parcels developed 1947-1957, lower Kenai River Watershed. Parcels developed during the period in pink; earlier development in tan. Data from the KPB GIS Dept.



Map 25: Cumulative parcels developed 1958-1970, lower Kenai River Watershed. Parcels developed during the period in pink; earlier development in tan. Data from the KPB GIS Dept.

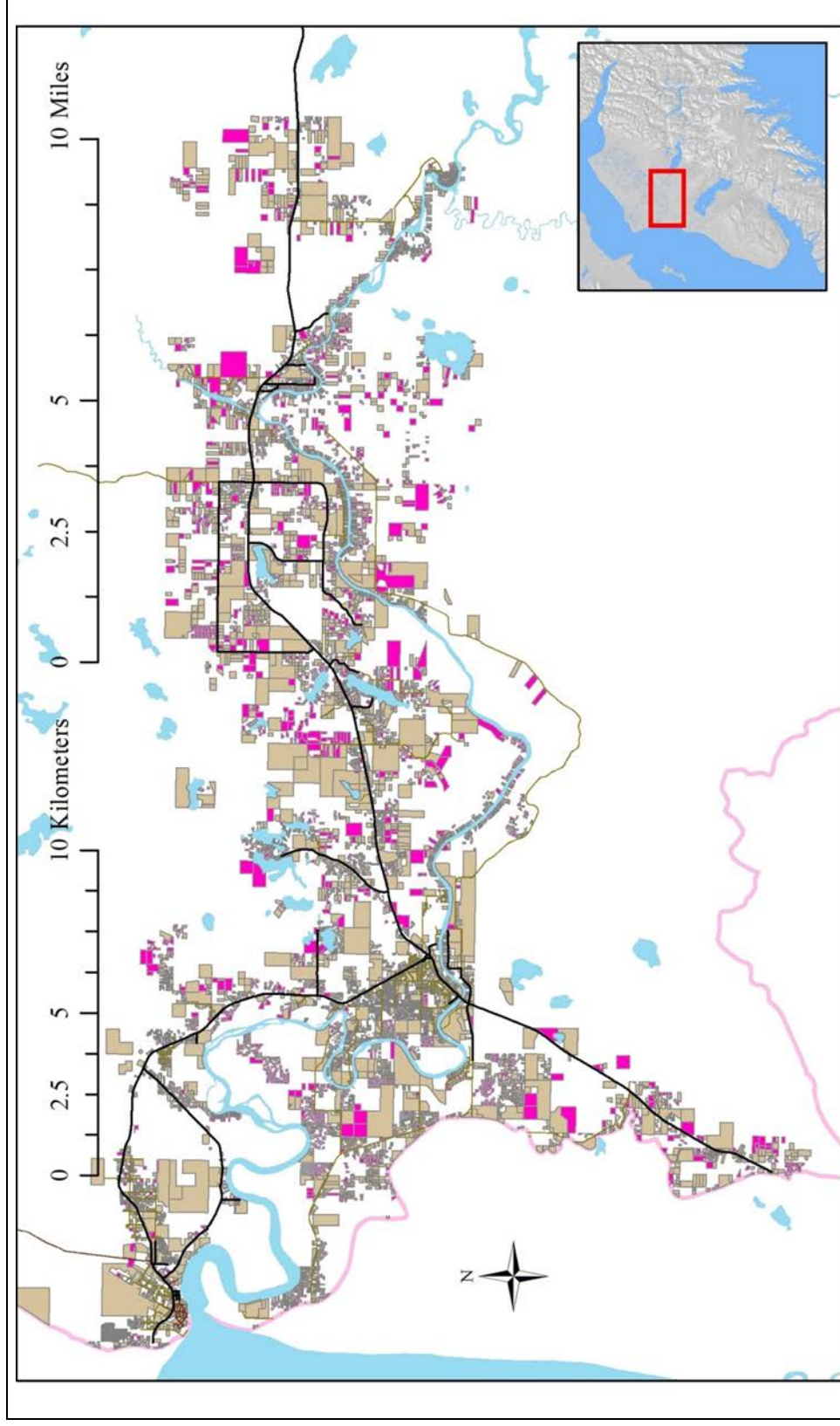


Map 26: Cumulative parcels developed 1971-1985, lower Kenai River Watershed. Parcels developed during the period in pink; earlier development in tan. Data from the KPB GIS Dept.

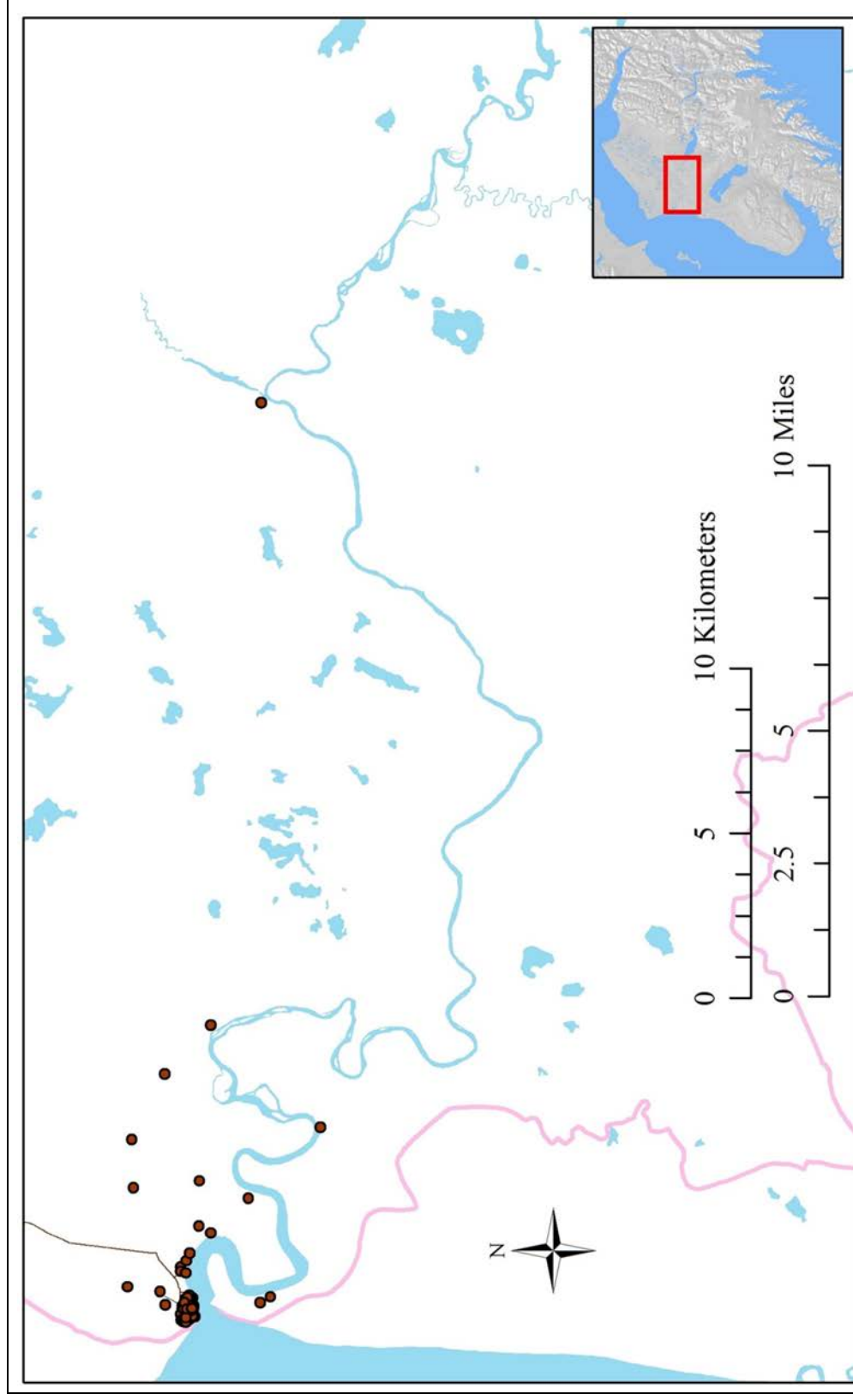


Map 27: Cumulative parcels developed 1986-1995, lower Kenai River Watershed. Parcels developed during the period in pink; earlier development in tan. Data from the KPB GIS Dept.

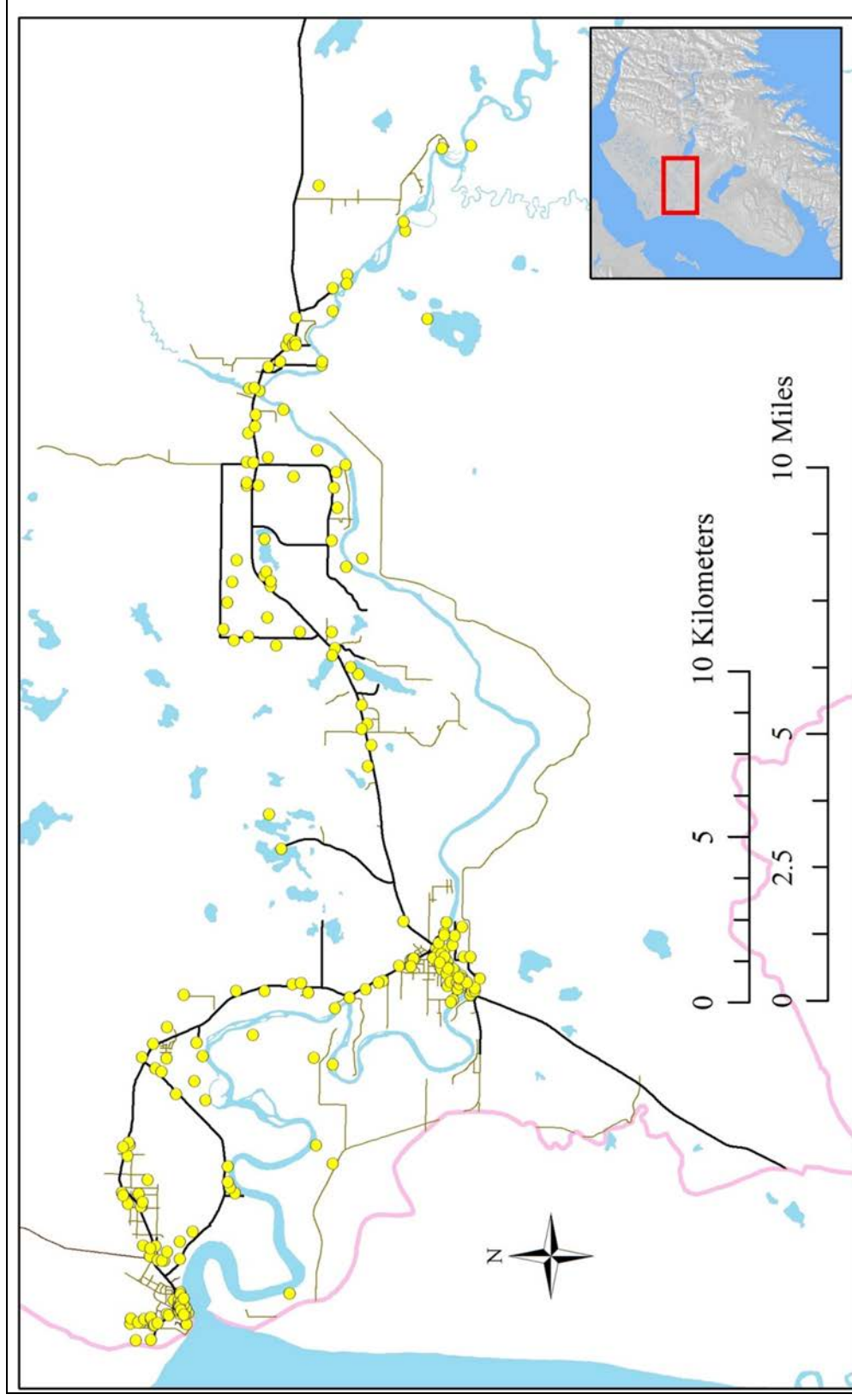




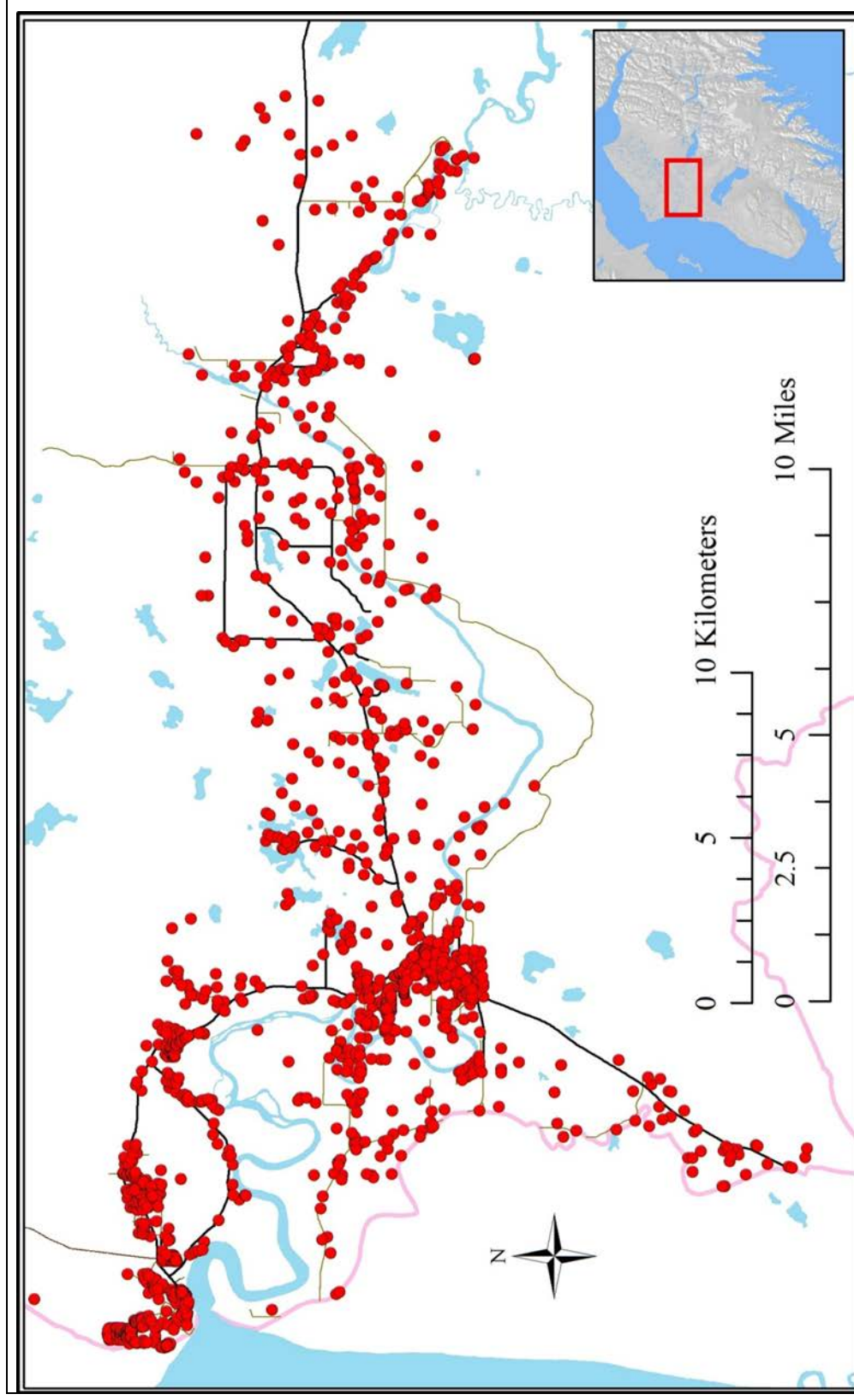
Map 28: Cumulative parcels developed 1996-2005, lower Kenai River Watershed. Parcels developed during the period in pink; earlier development in tan. Data from the KPB GIS Dept.



Map 29: Centroids showing parcels developed prior to 1947, lower Kenai River Watershed. Data from the KPB GIS Dept., modified by the author based on historical records.

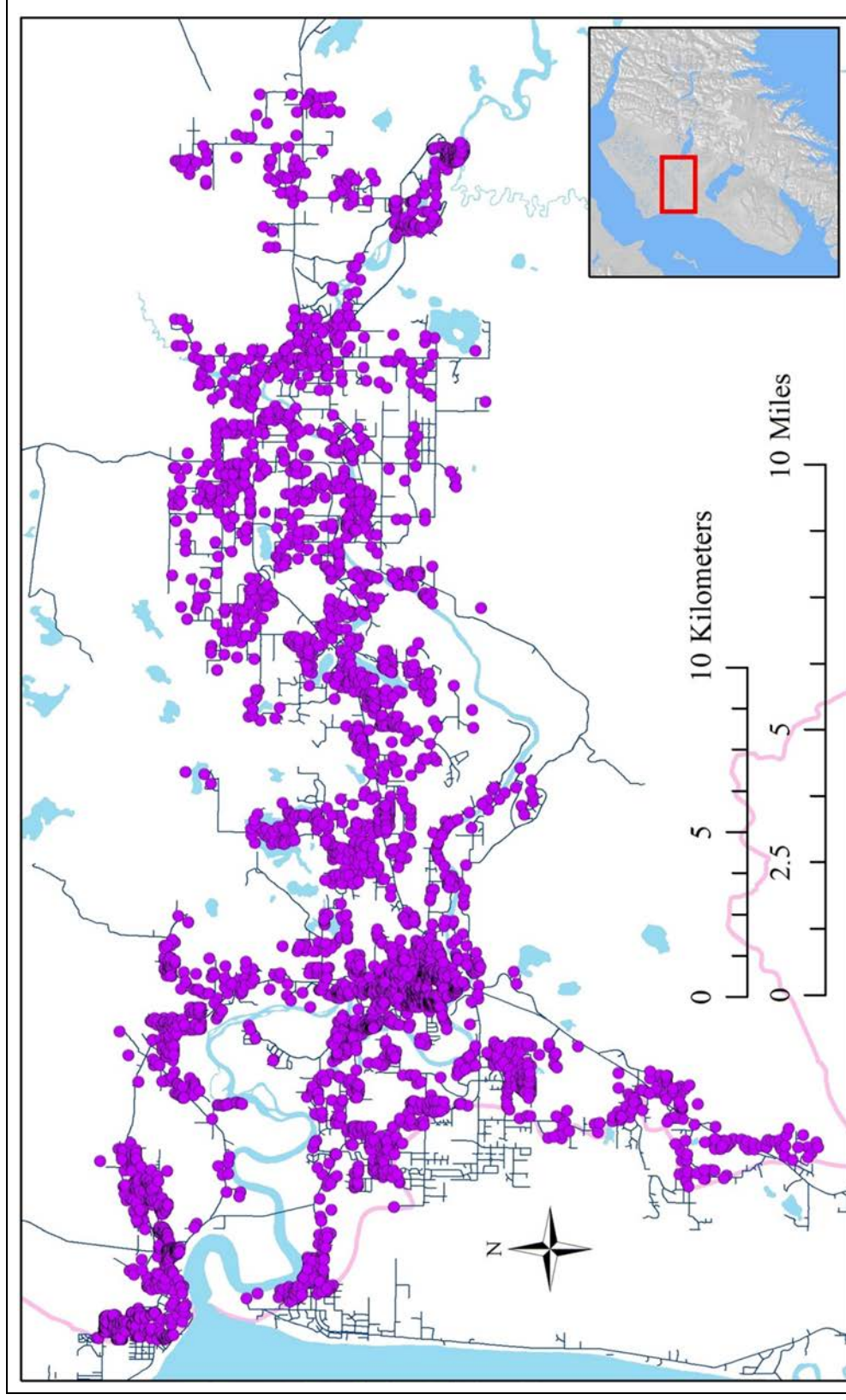


Map 30: Centroids showing parcels developed 1947-1957, lower Kenai River Watershed. Data from the KPB GIS Dept., modified by the author based on historical records.

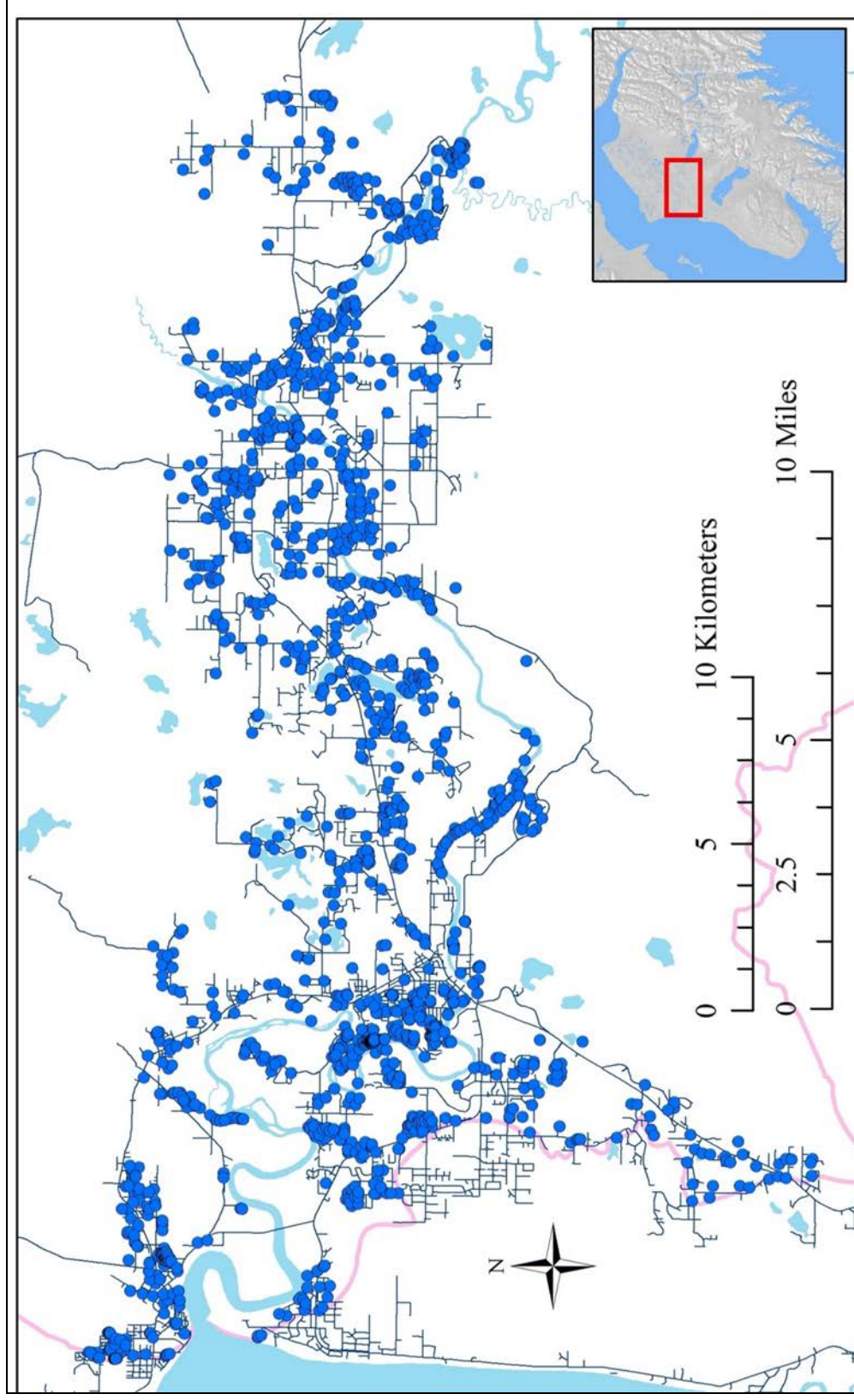


Map 31: Centroids showing parcels developed 1958-1970, lower Kenai River Watershed. Data from the KPB GIS Dept., modified by the author based on historical records.

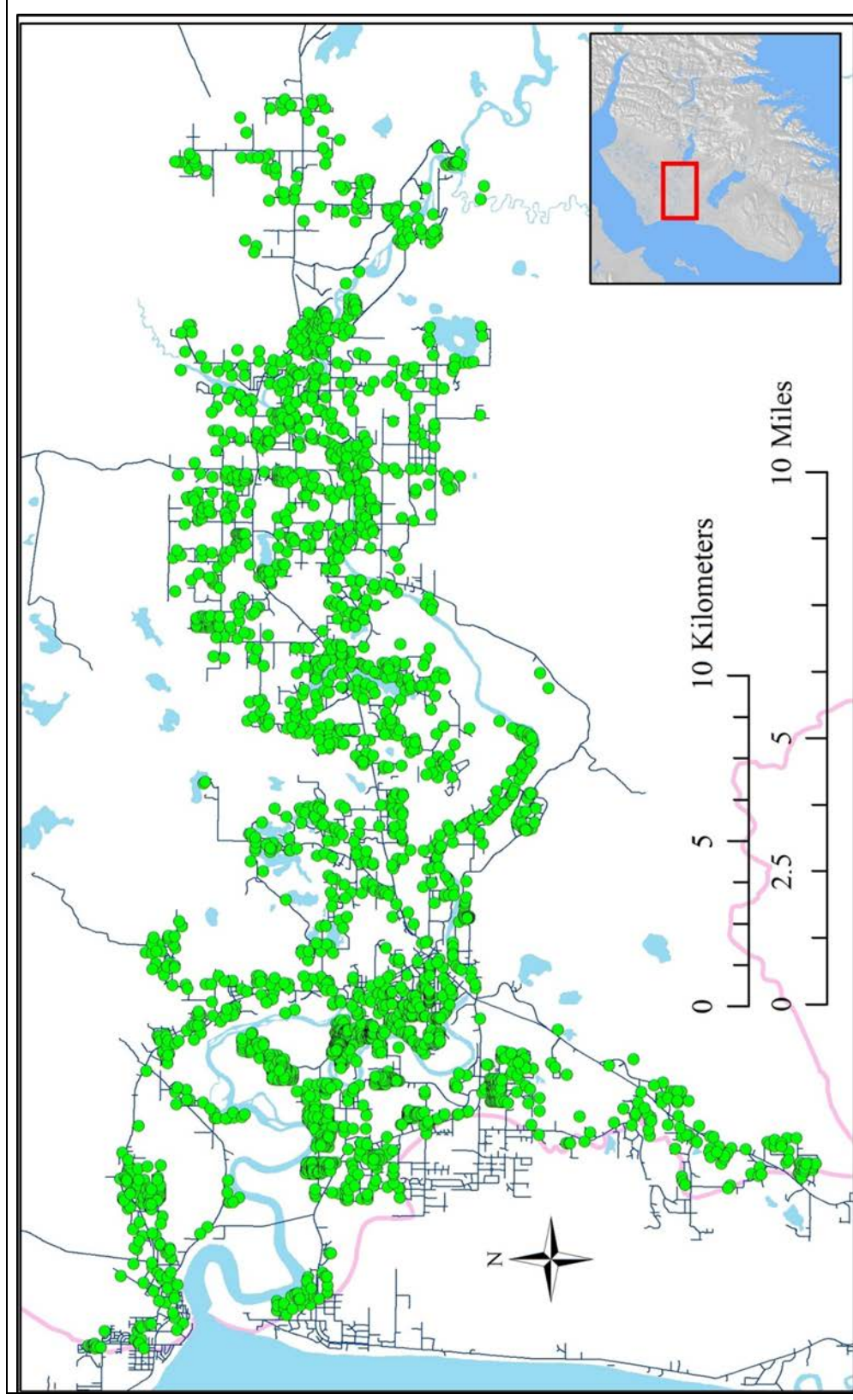




Map 32: Centroids showing parcels developed 1971-1985, lower Kenai River Watershed. Data from the KPB GIS Dept., modified by the author based on historical records.

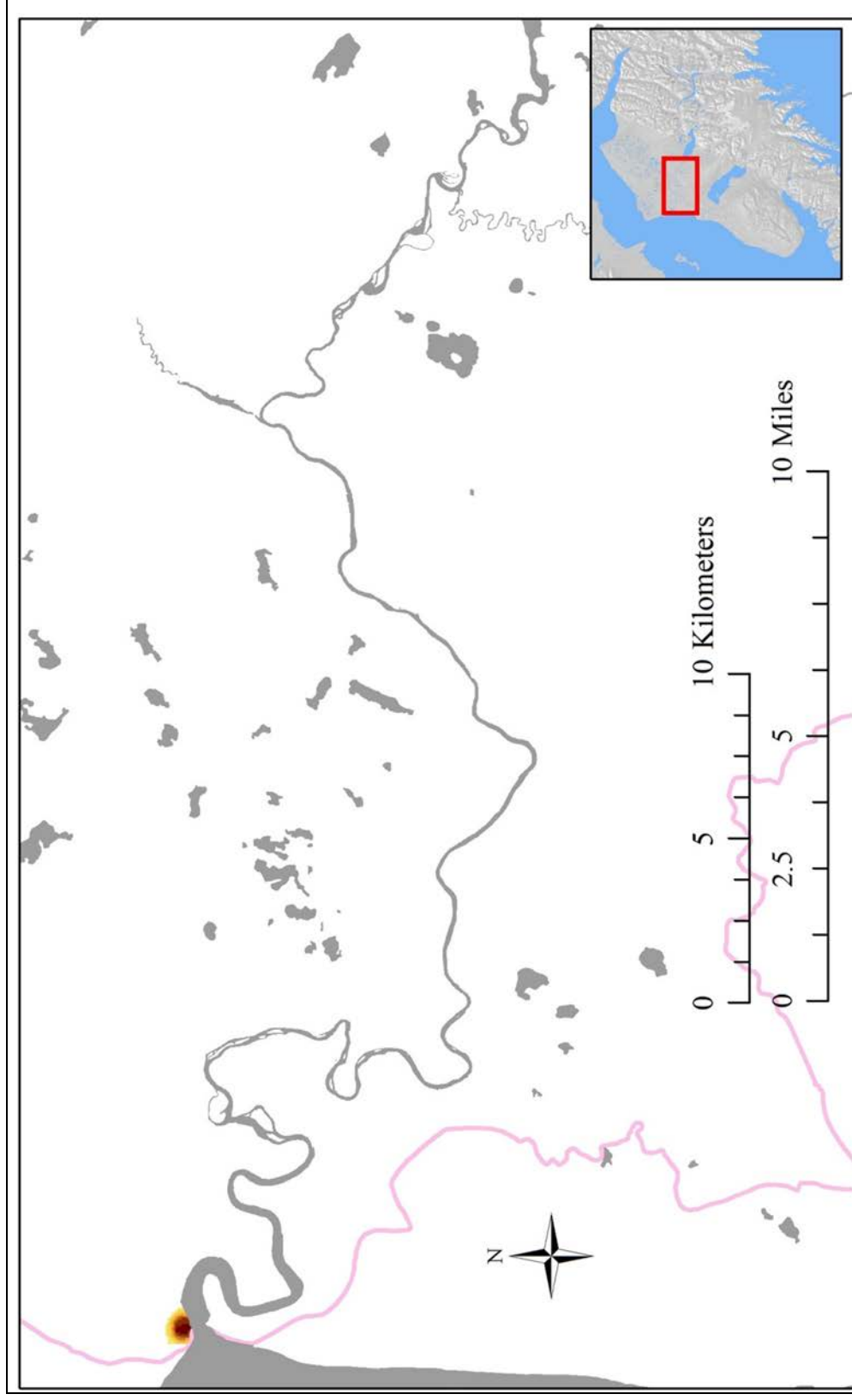


Map 33: Centroids showing parcels developed 1986-1995, lower Kenai River Watershed. Data from the KPB GIS Dept., modified by the author based on historical records.

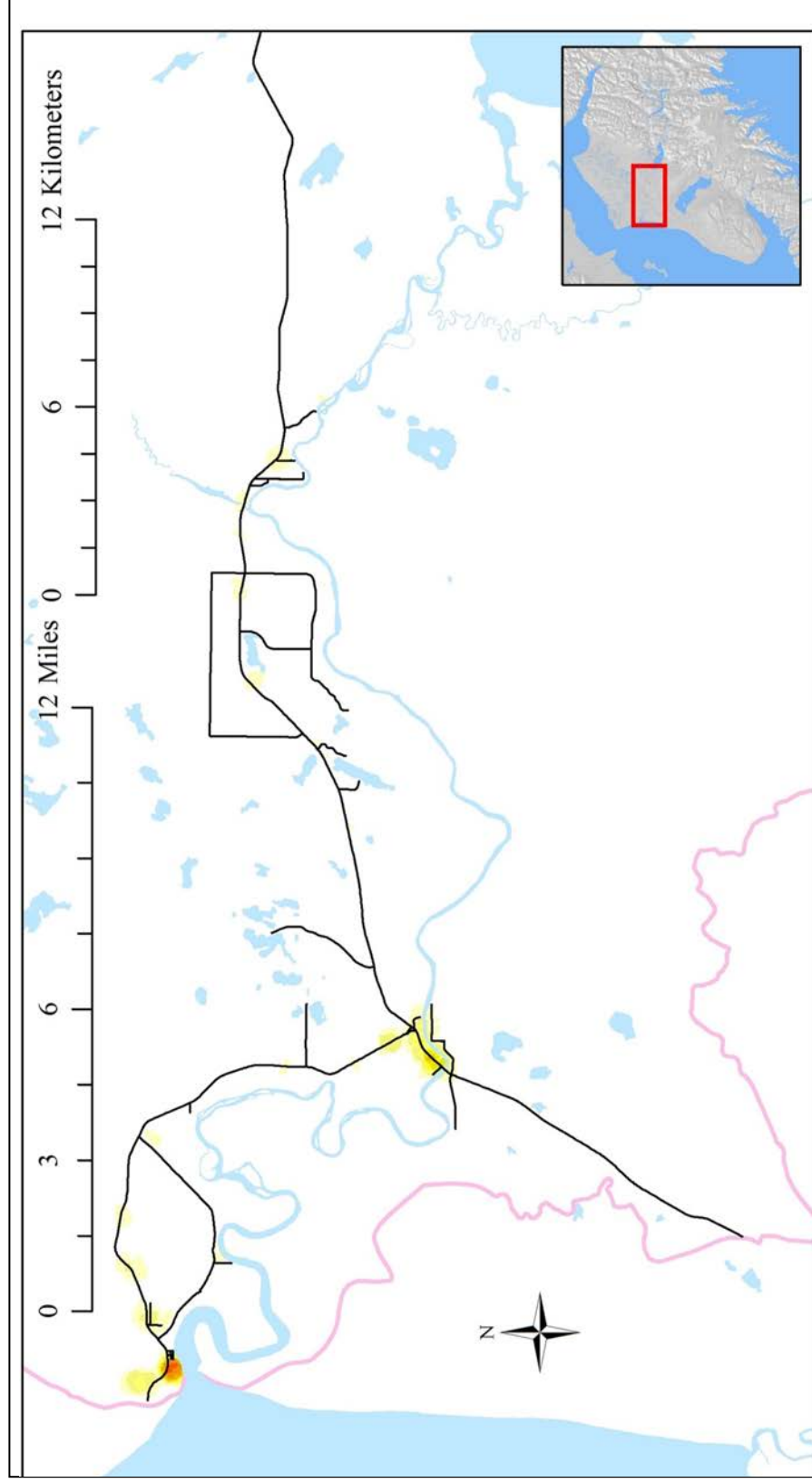


Map 34: Centroids showing parcels developed 1996-2005, lower Kenai River Watershed. Data from the KPB GIS Dept., modified by the author based on historical records.

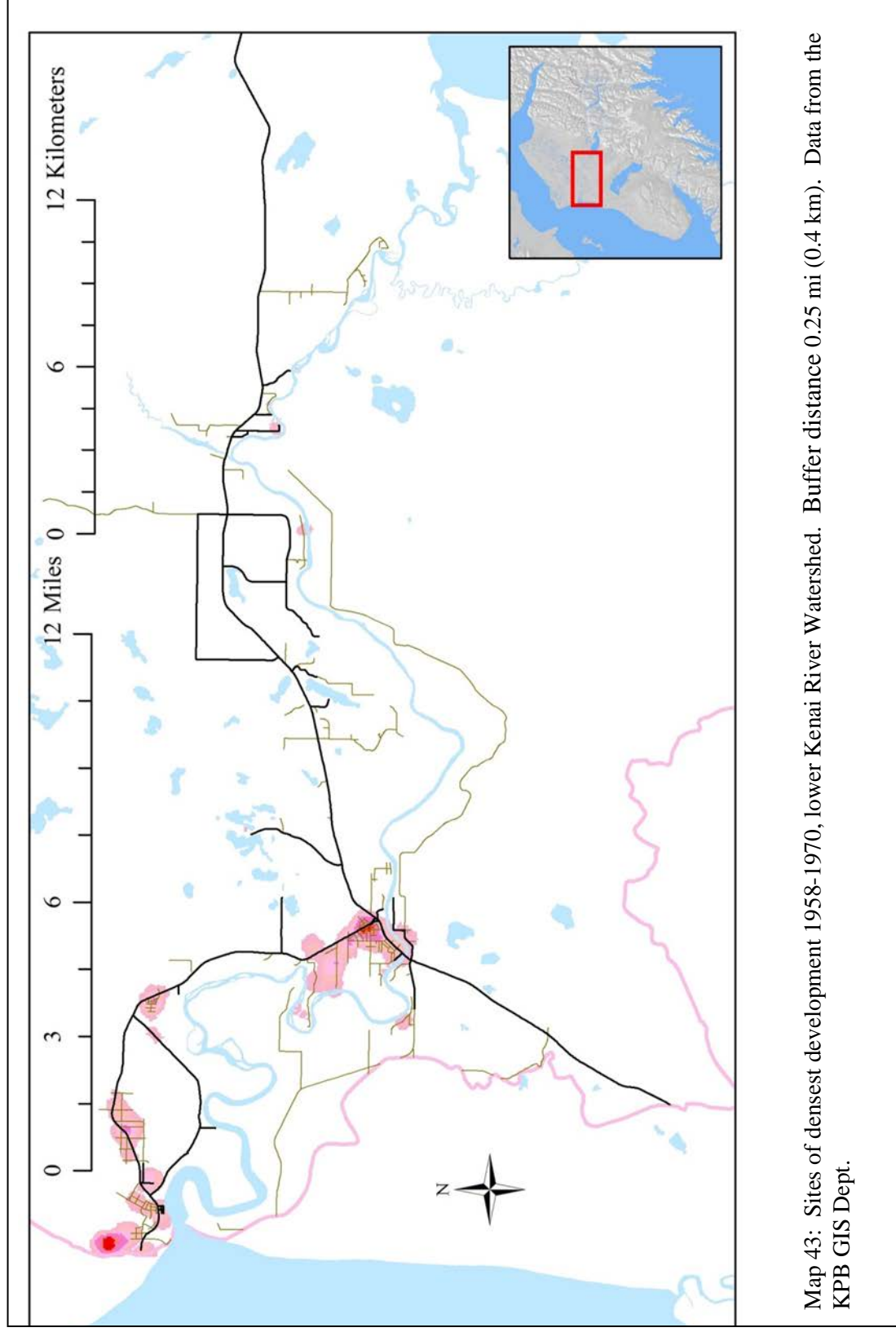




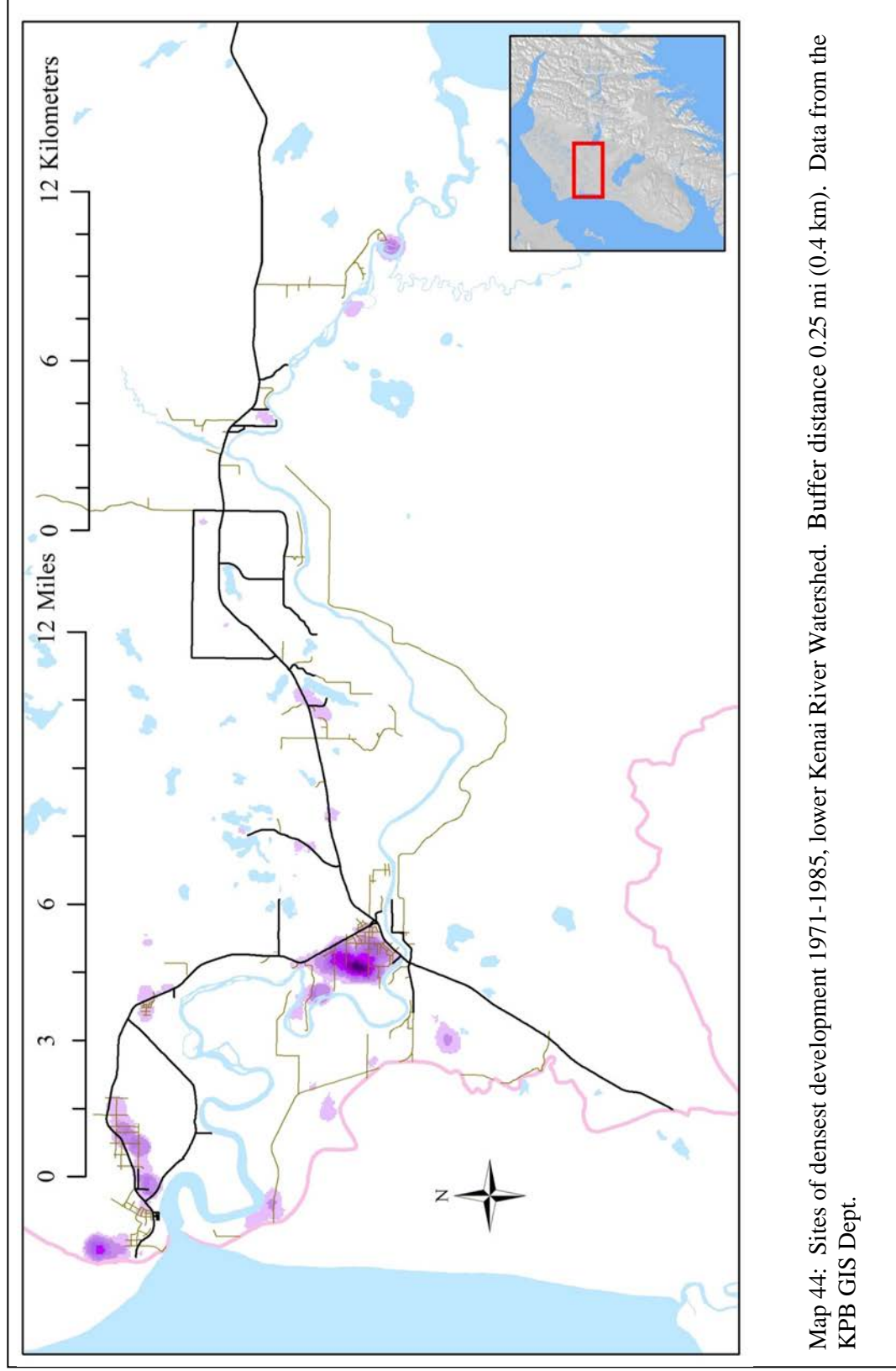
Map 41: Sites of densest development prior to 1947, lower Kenai River Watershed. Buffer distance 0.25 mi (0.4 km). Data from the KPB GIS Dept.

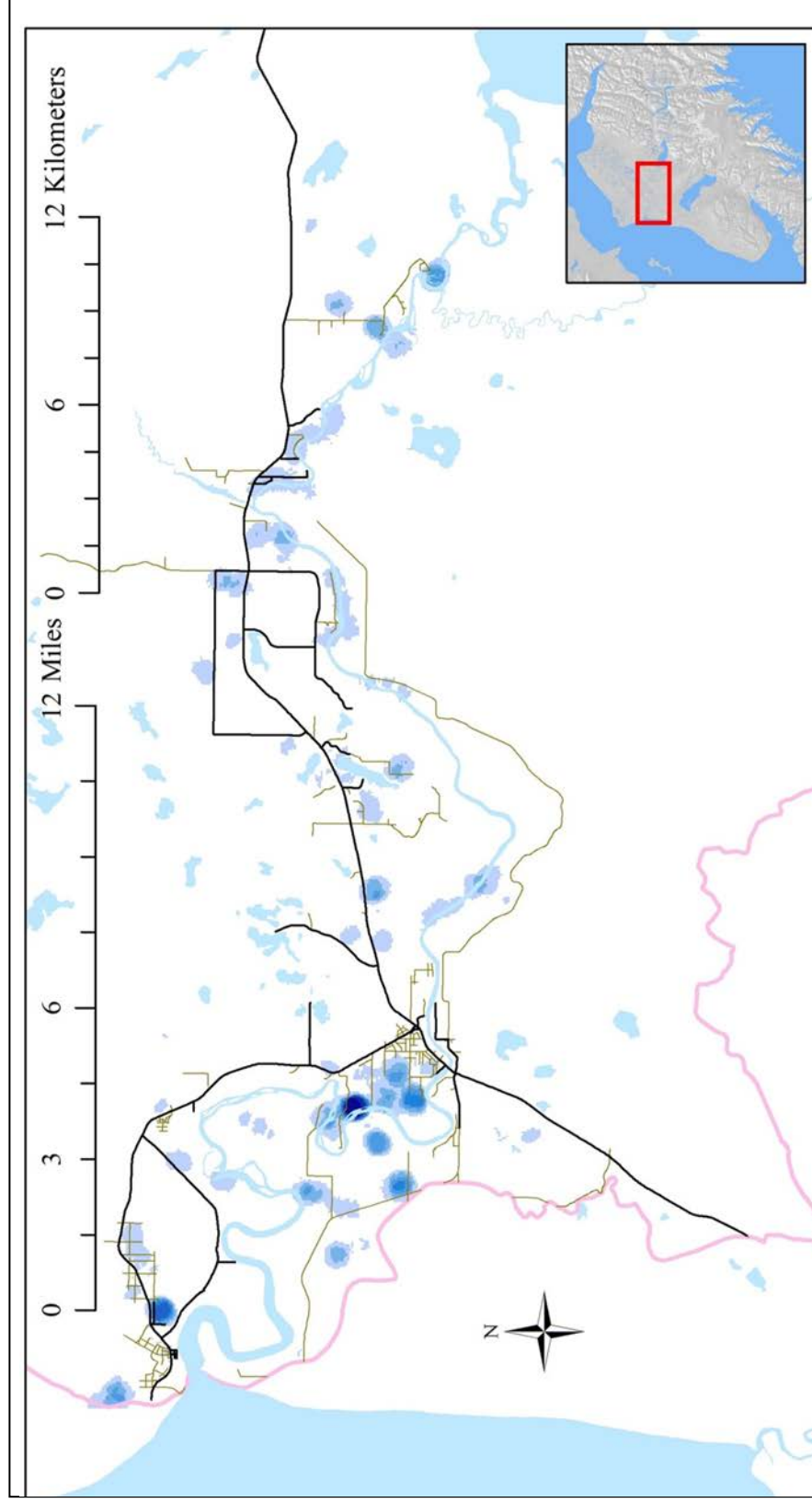


Map 42: Sites of densest development 1947-1957, lower Kenai River Watershed. Buffer distance 0.25 mi (0.4 km). Data from the KPB GIS Dept.

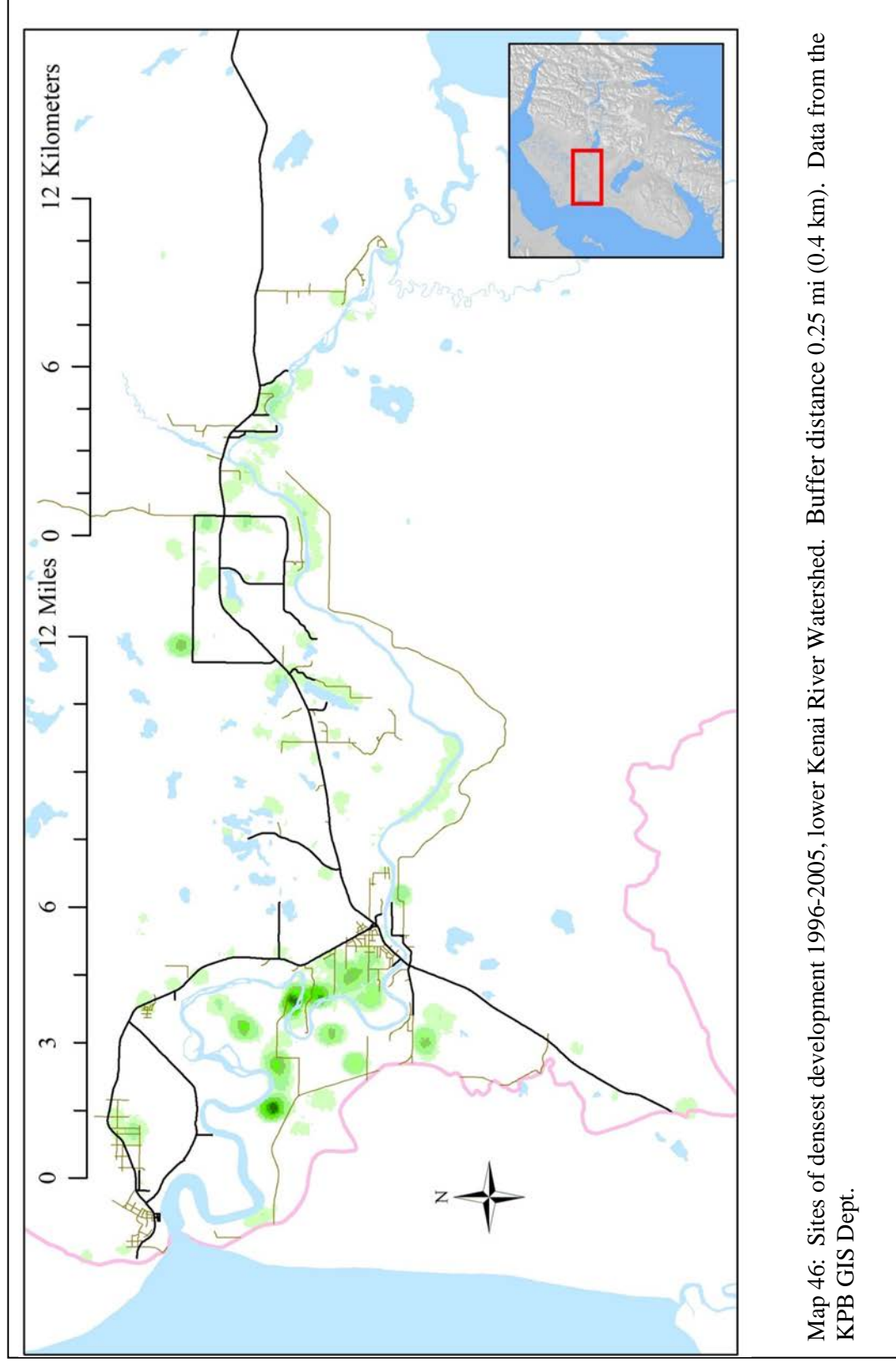




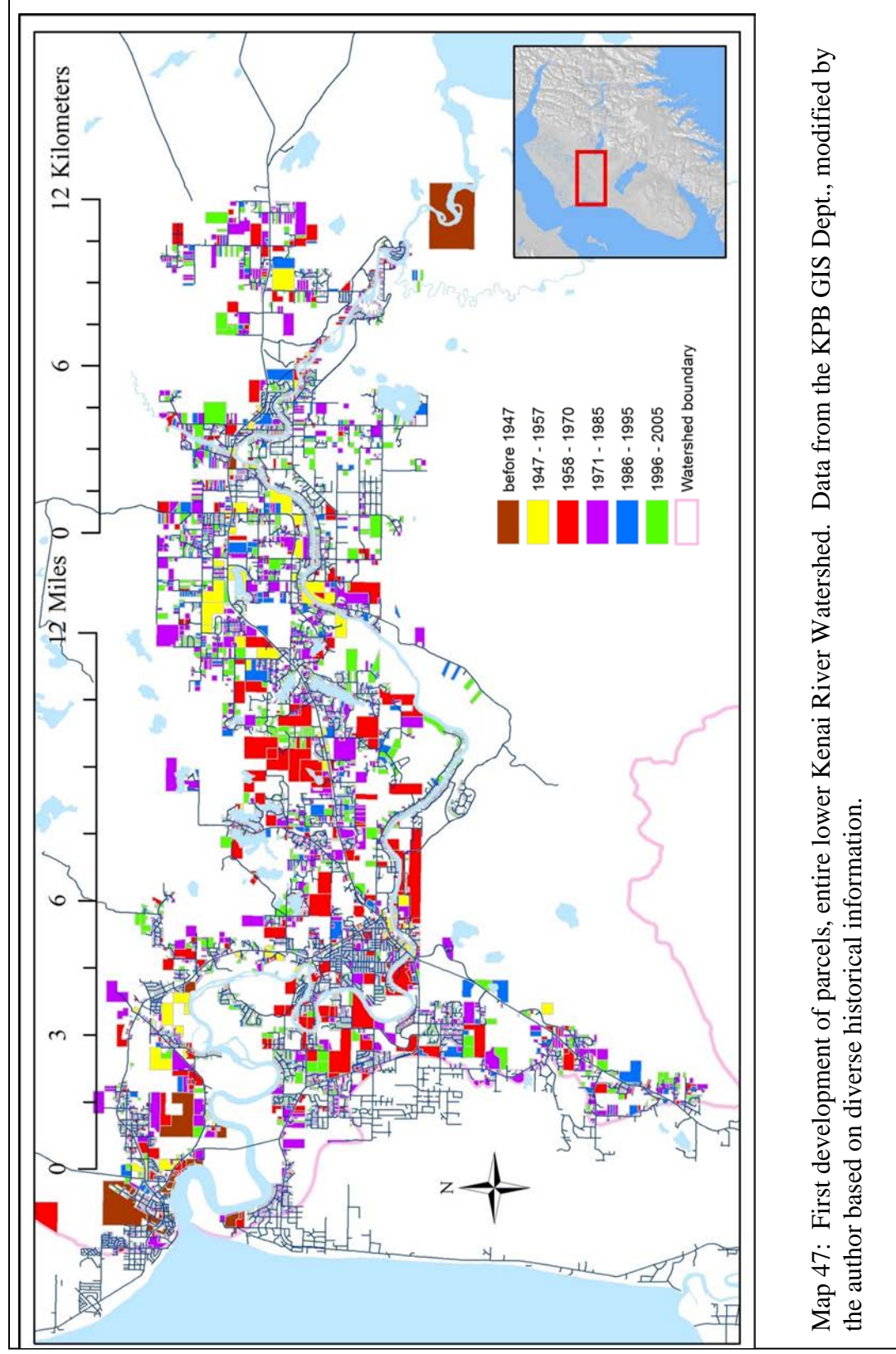


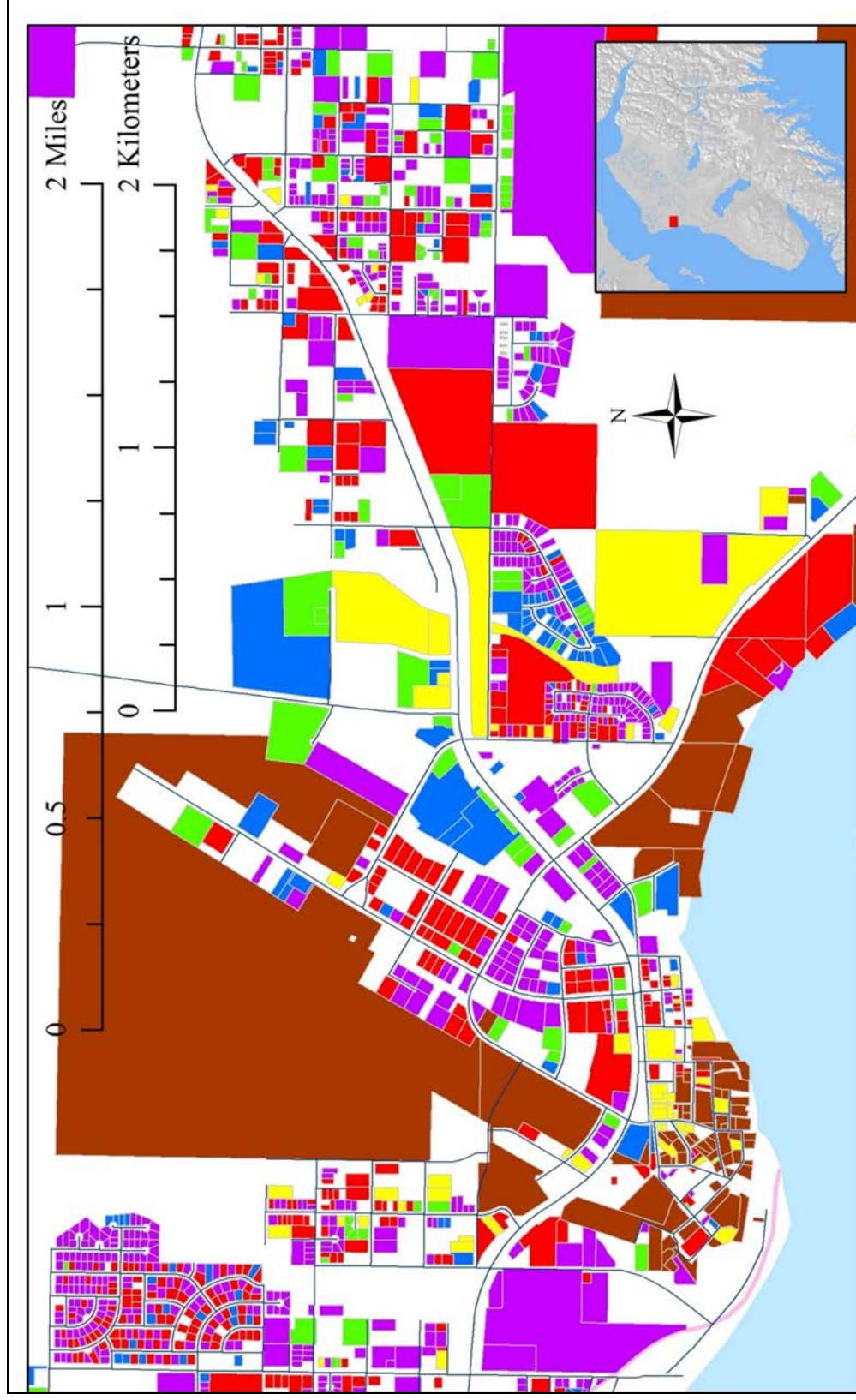


Map 45: Sites of densest development 1986-1995, lower Kenai River Watershed. Buffer distance 0.25 mi (0.4 km). Data from the KPB GIS Dept.

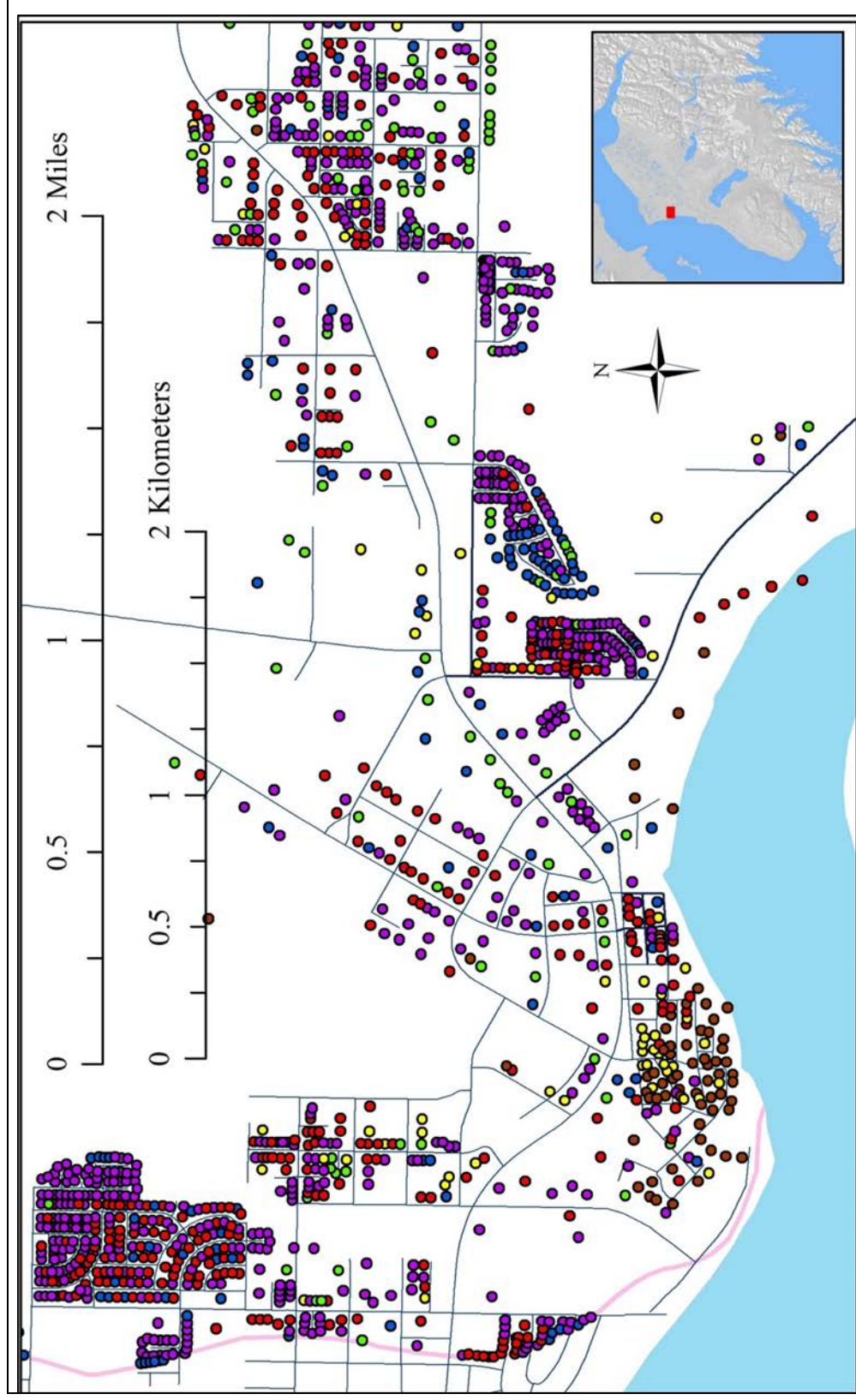






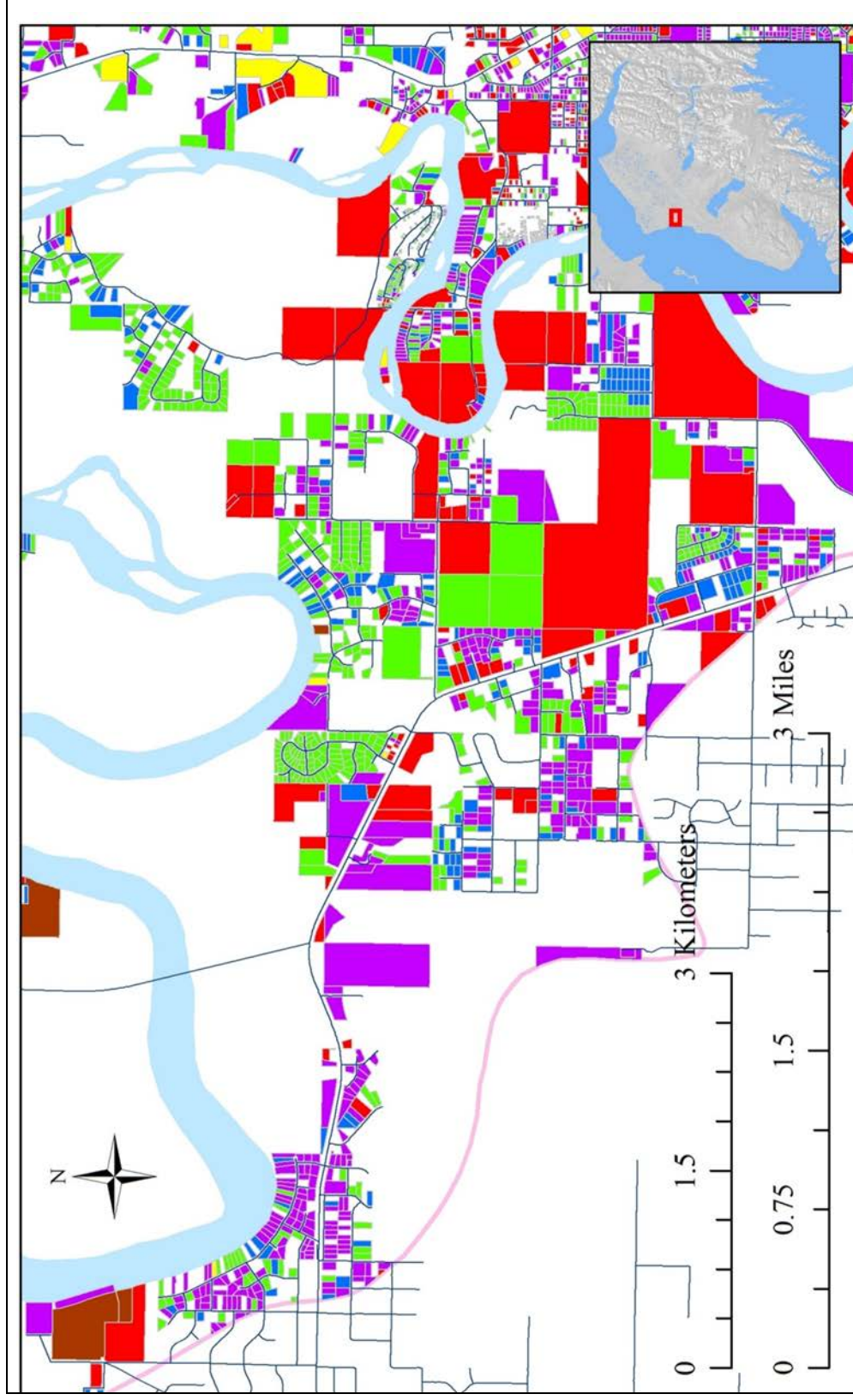


Map 48: First development of parcels, Kenai town area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.

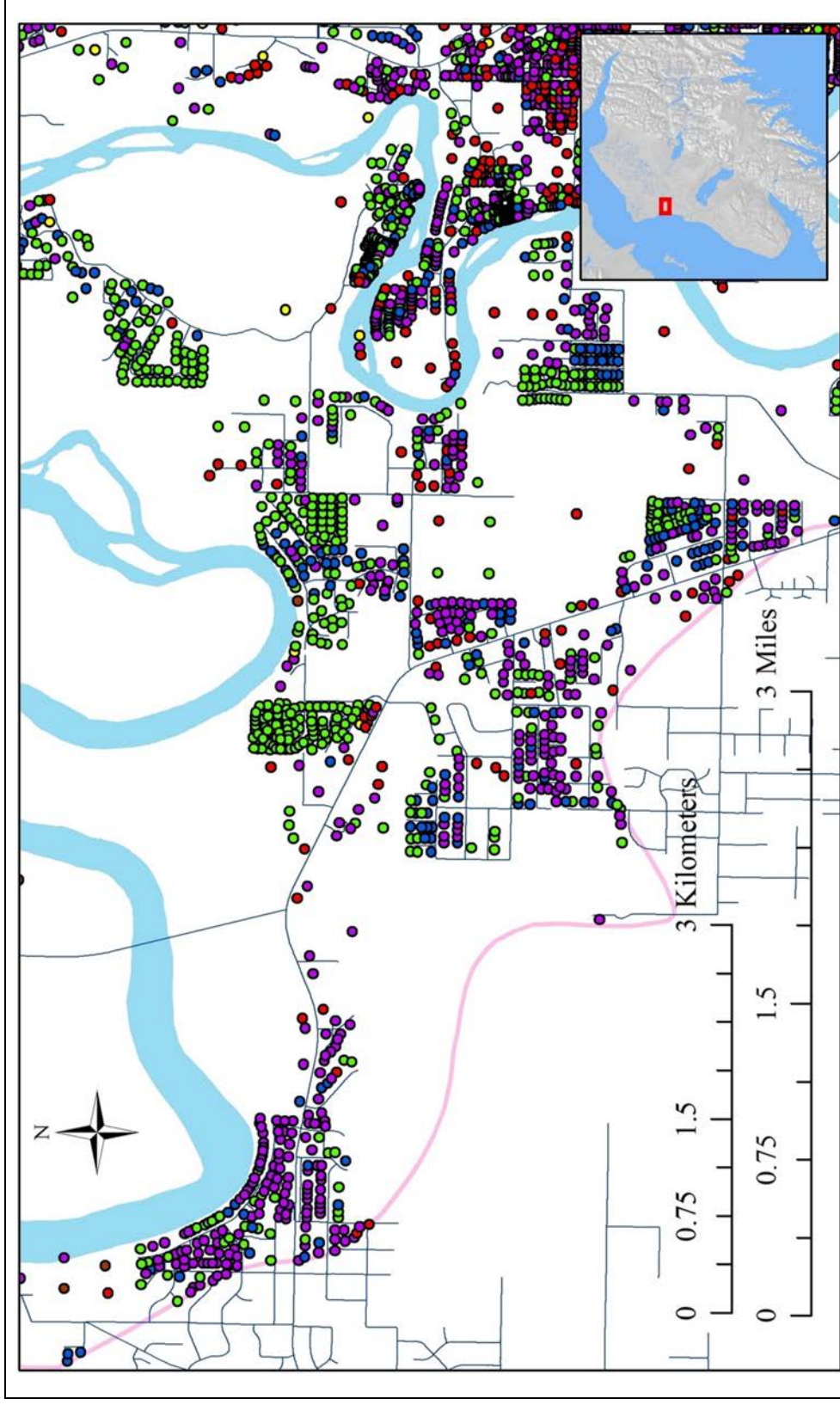


Map 49: Centroid point display of first development of parcels, Kenai town area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



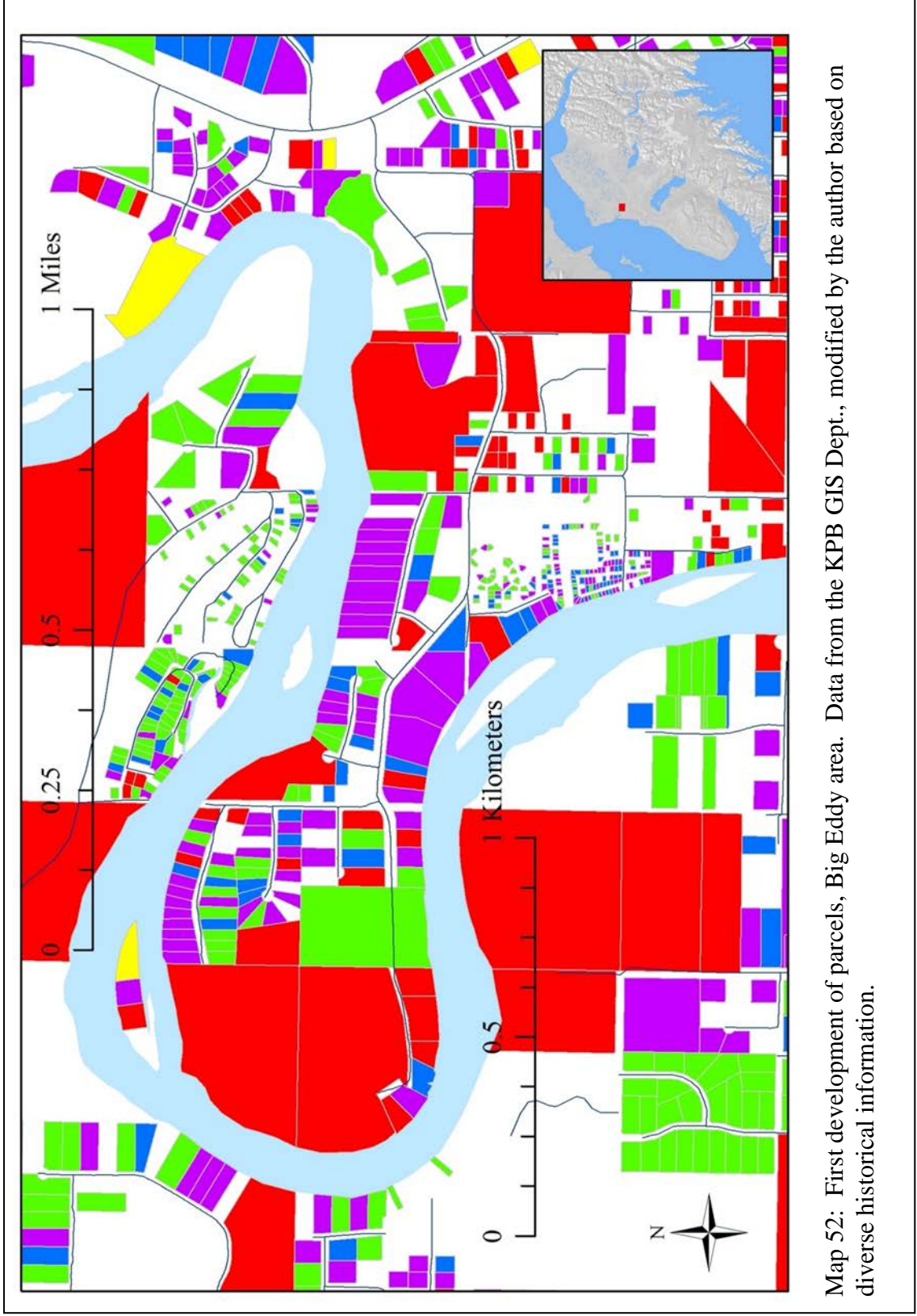


Map 50: First development of parcels, Kalifornsky CDP area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



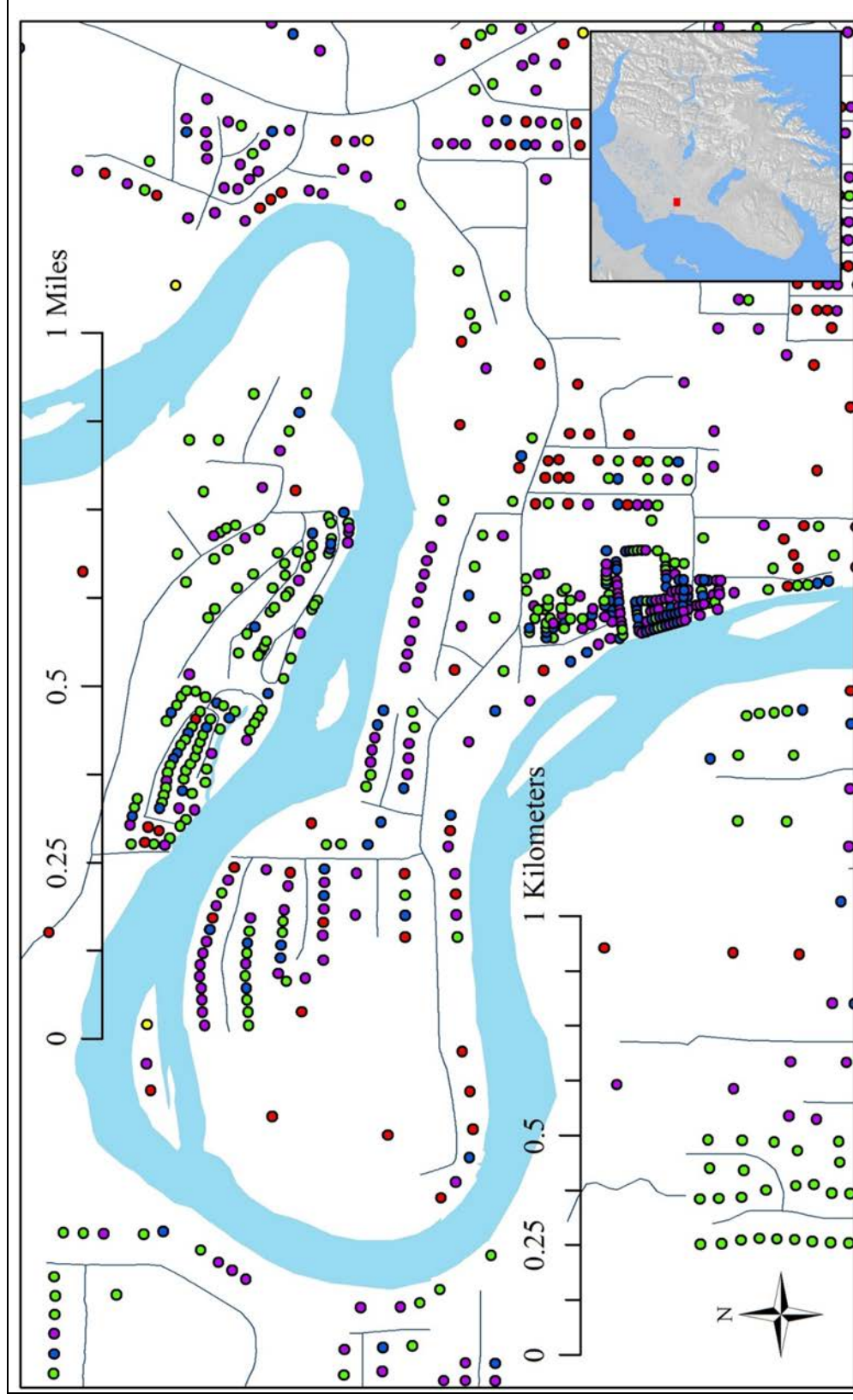
Map 51: Centroid point display of parcels, Kalifornsky CDP area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



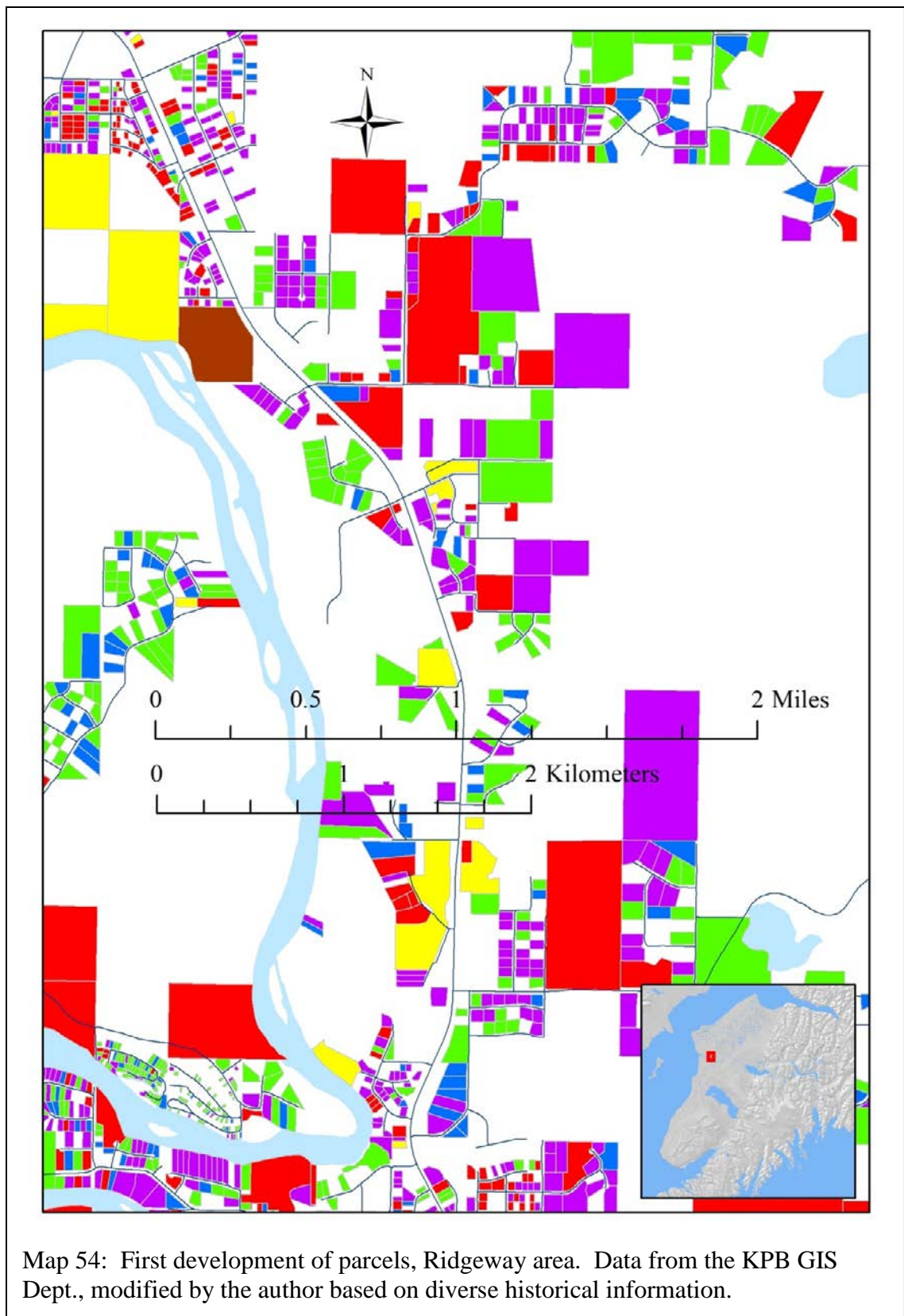


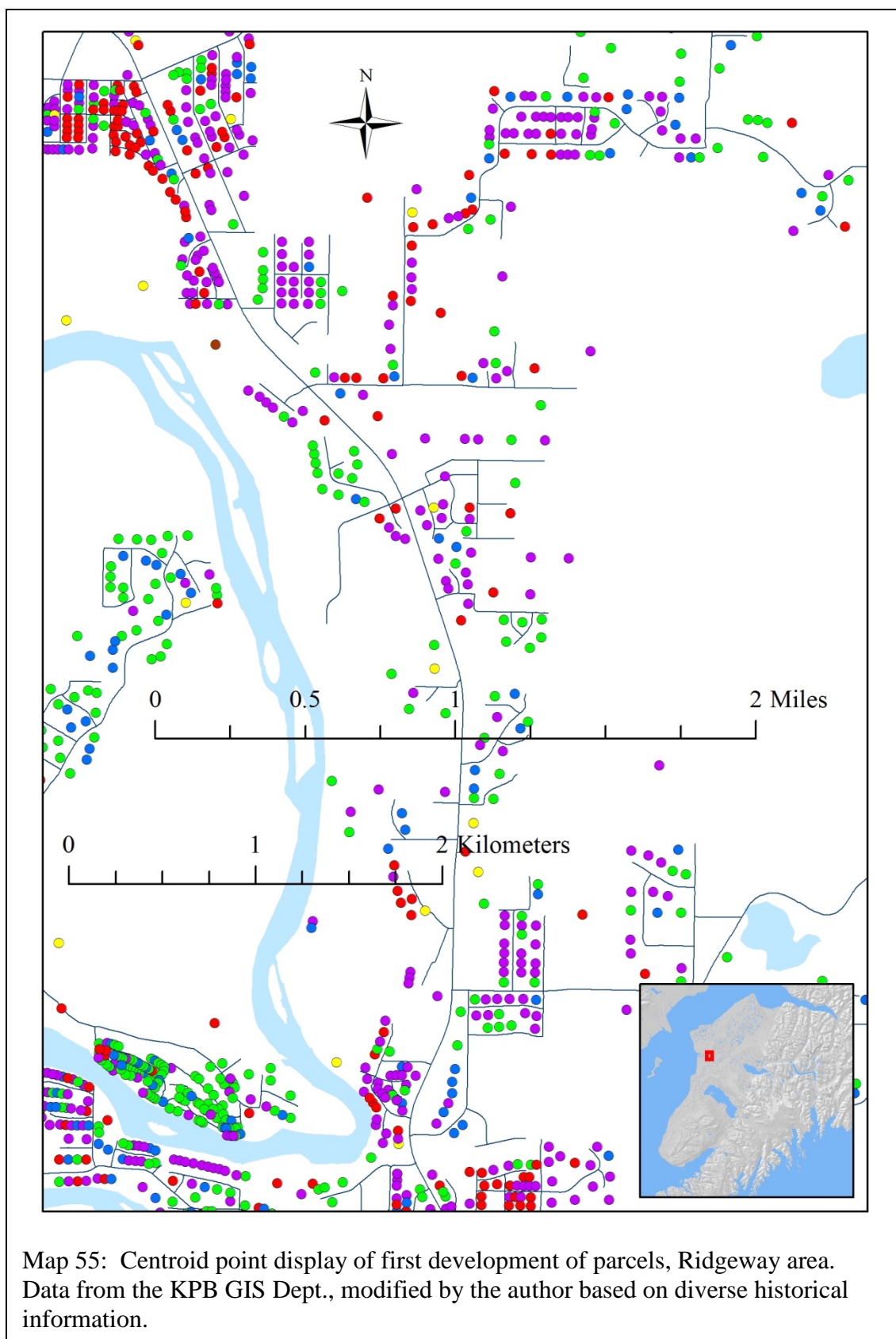
Map 52: First development of parcels, Big Eddy area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



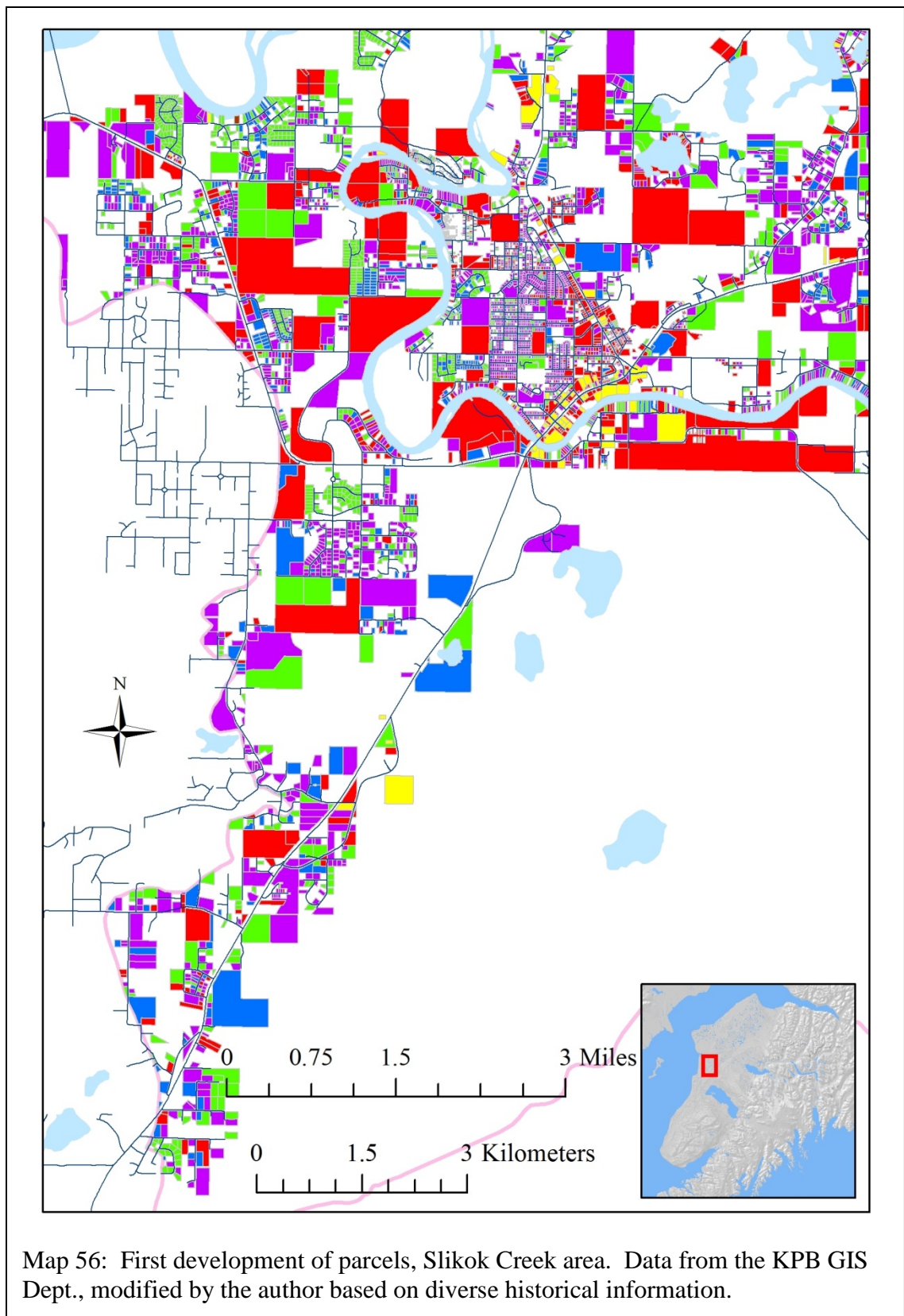


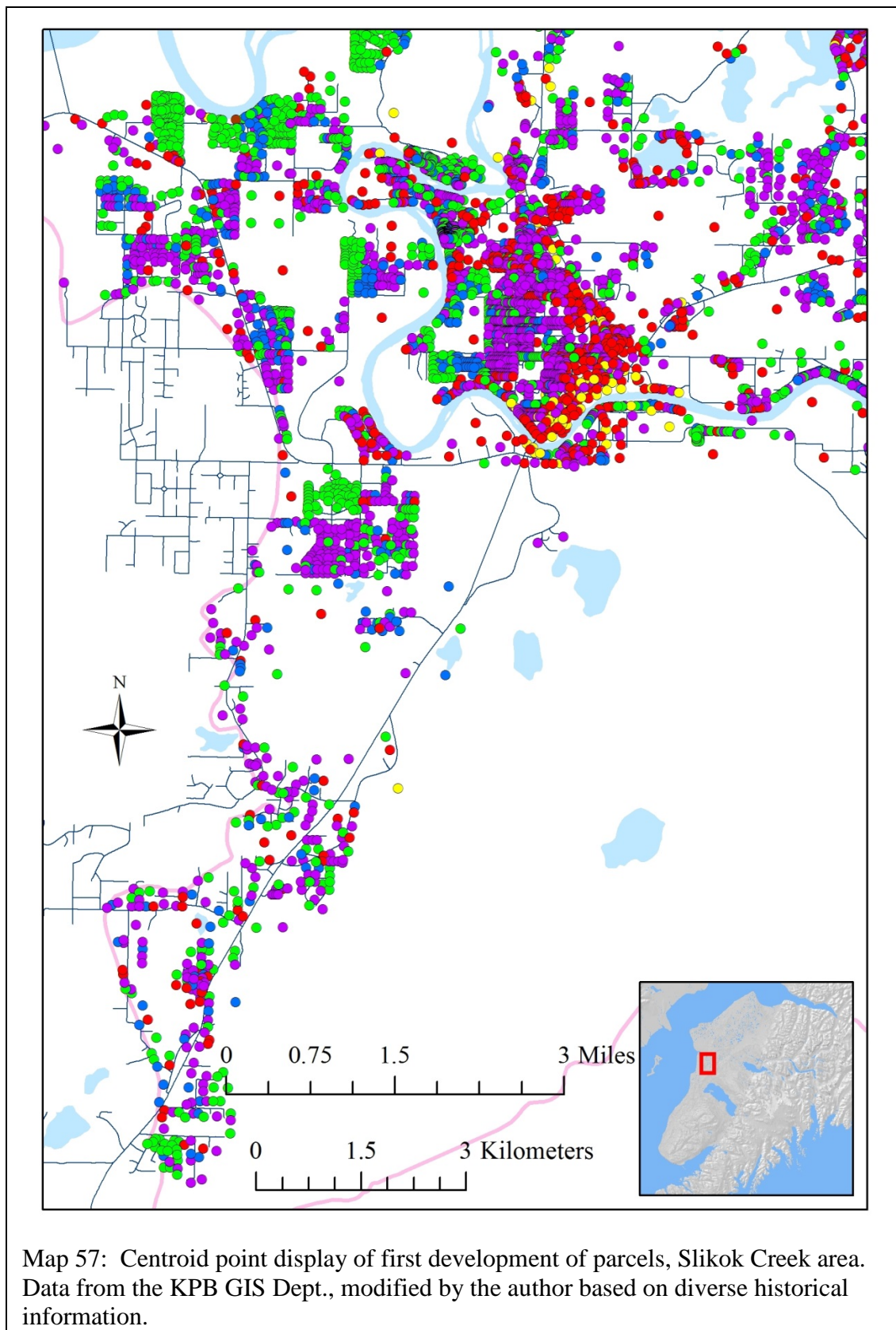
Map 53: Centroid point display of parcels, Big Eddy area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



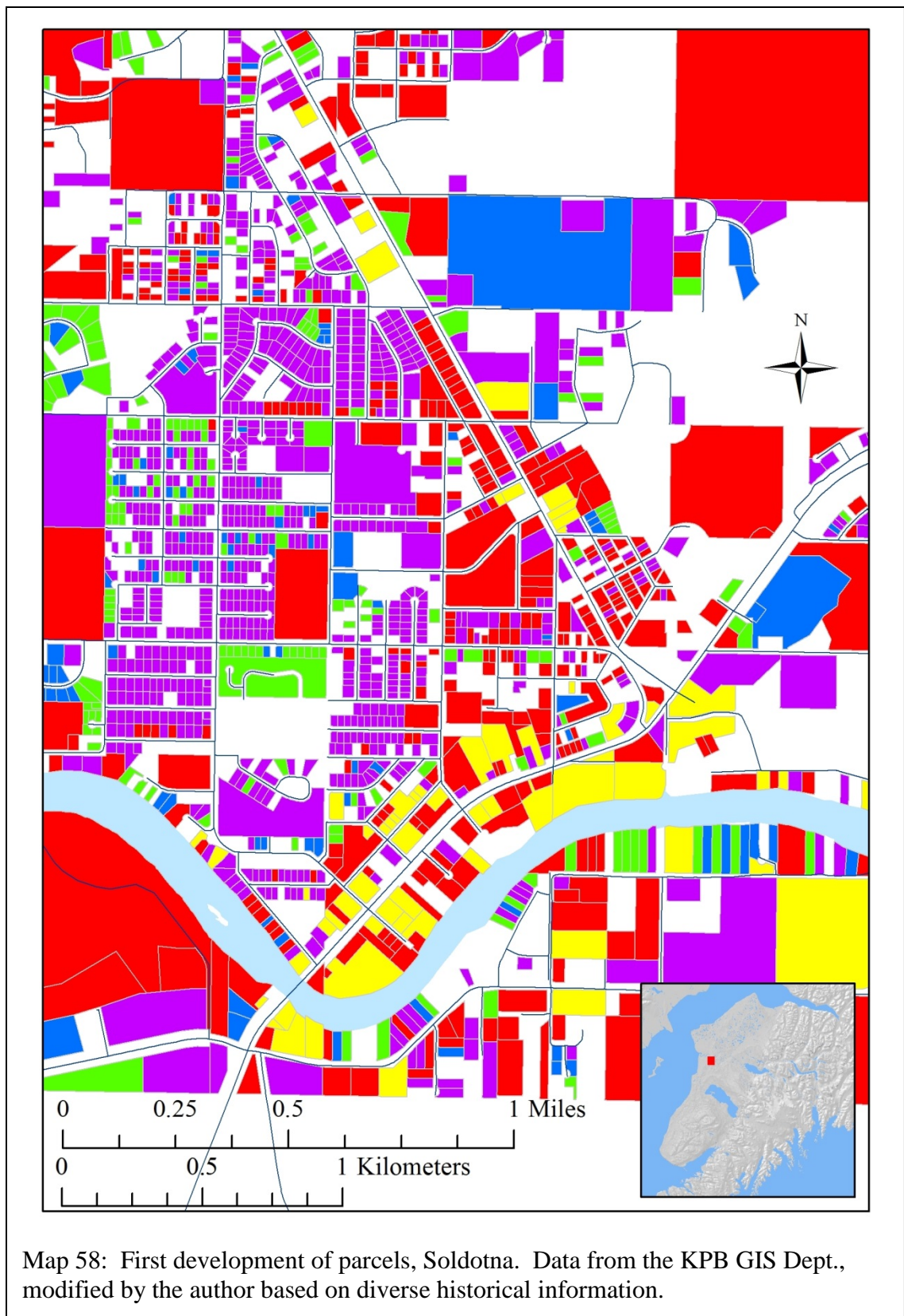




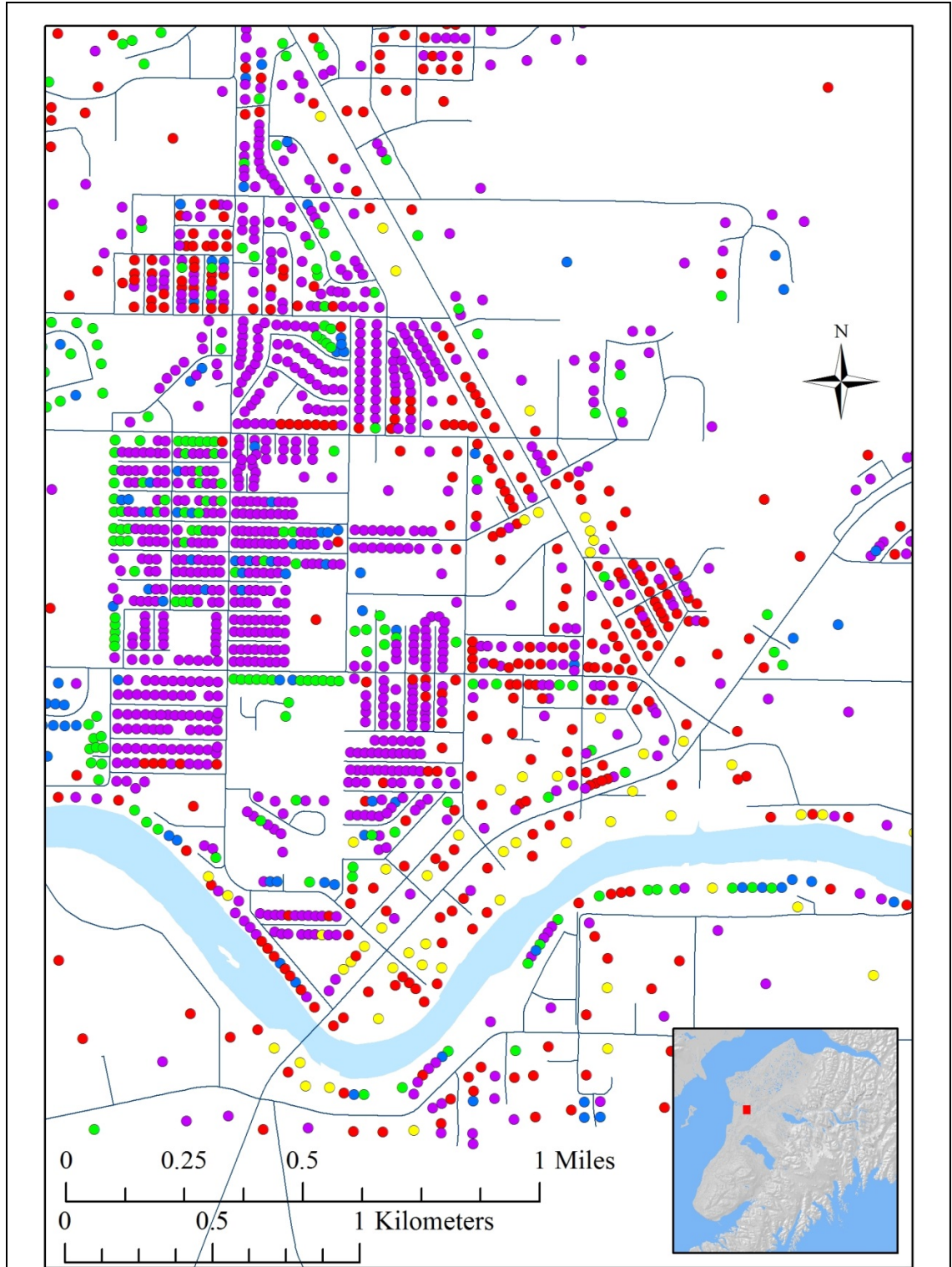




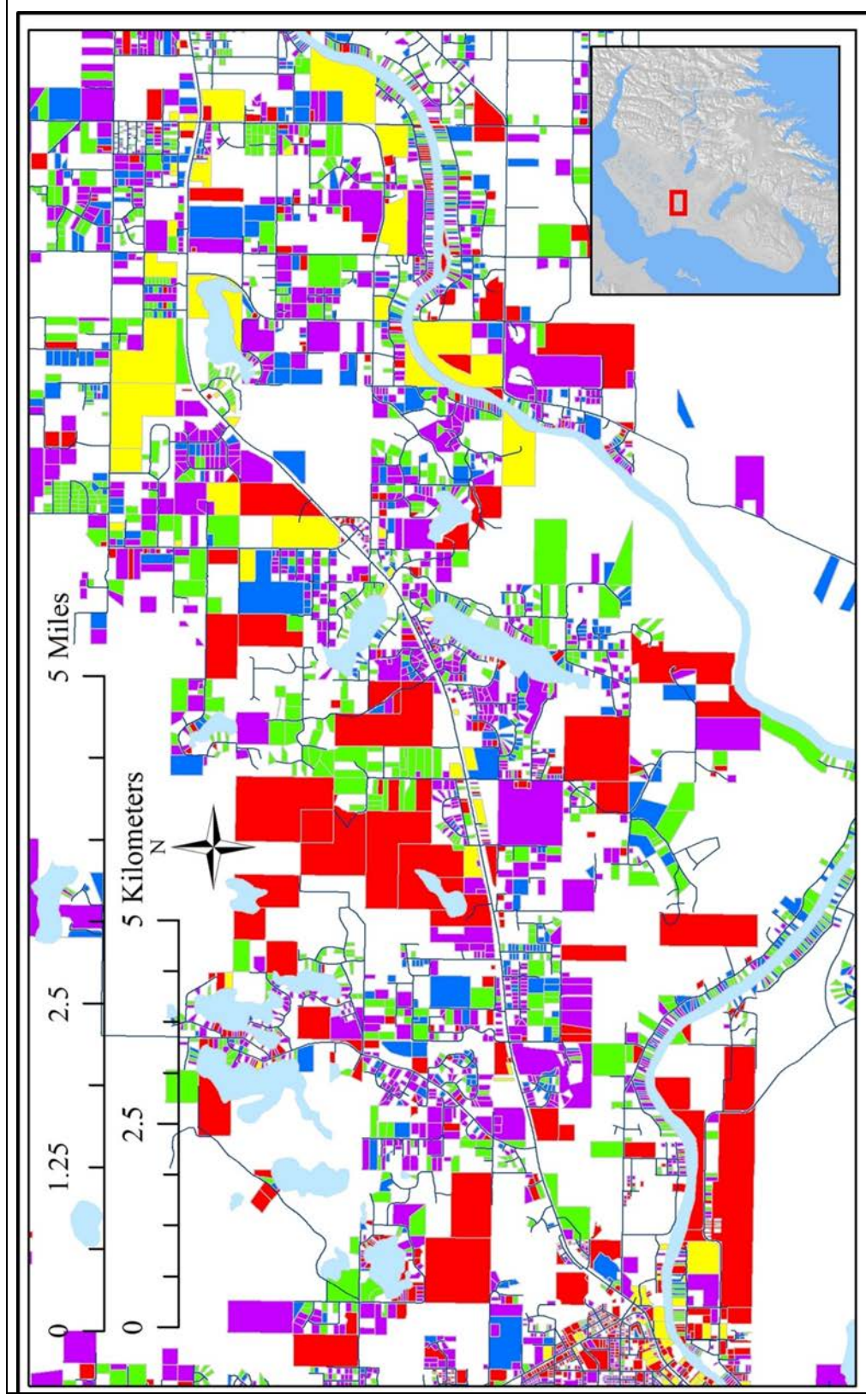






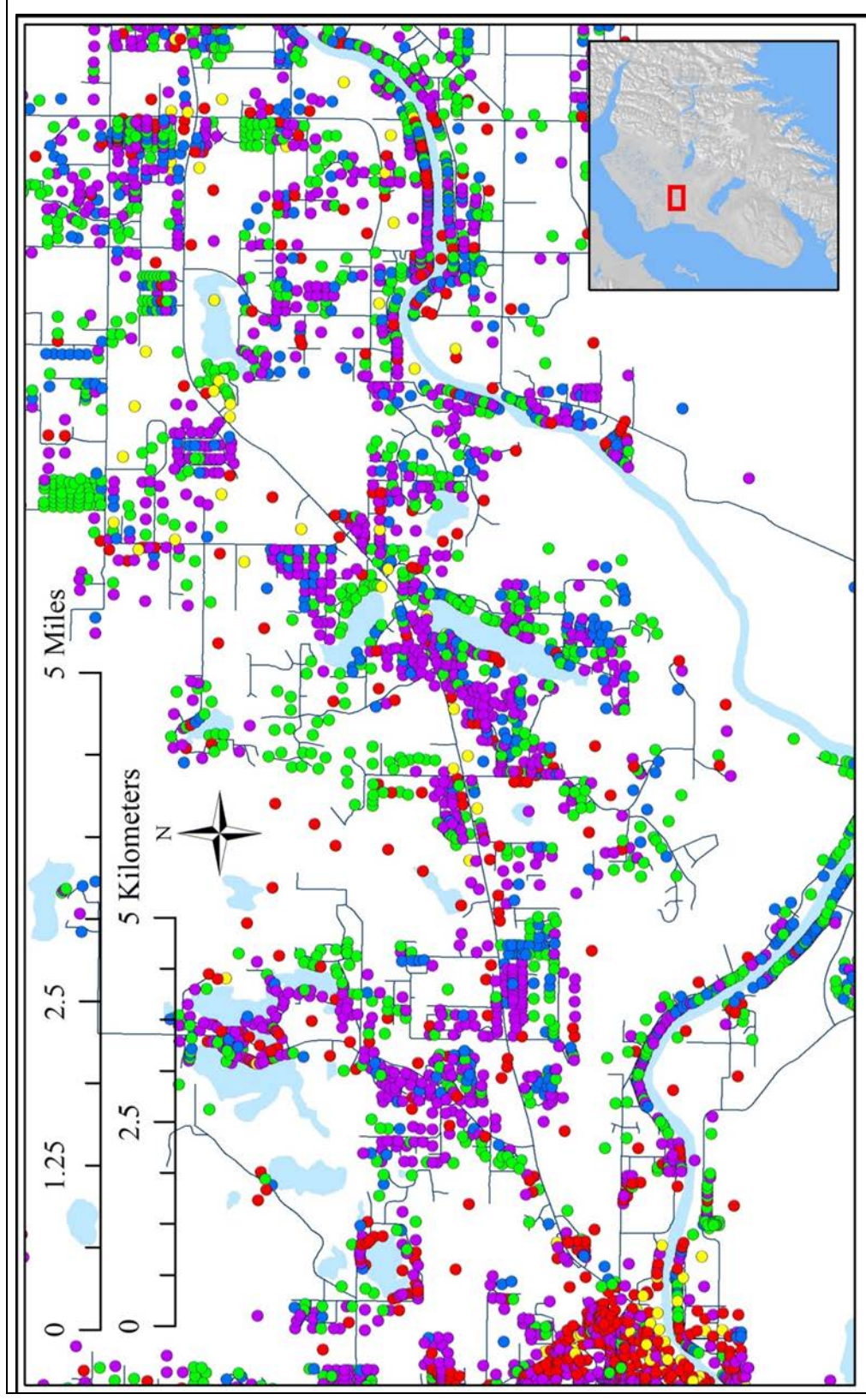


Map 59: Centroid point display of first development of parcels, Soldotna. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



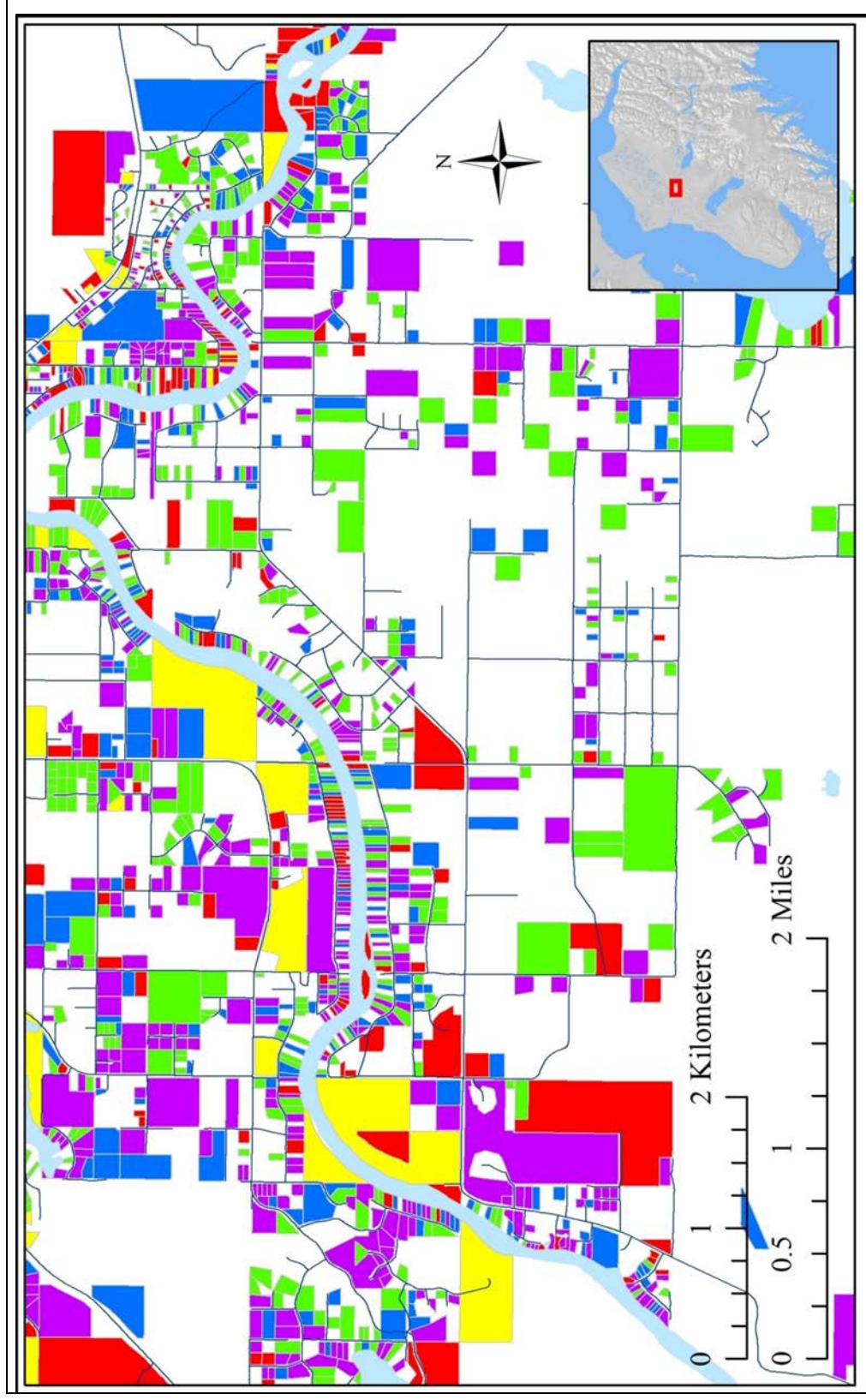
Map 60: First development of parcels, between Soldotna and Sterling. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



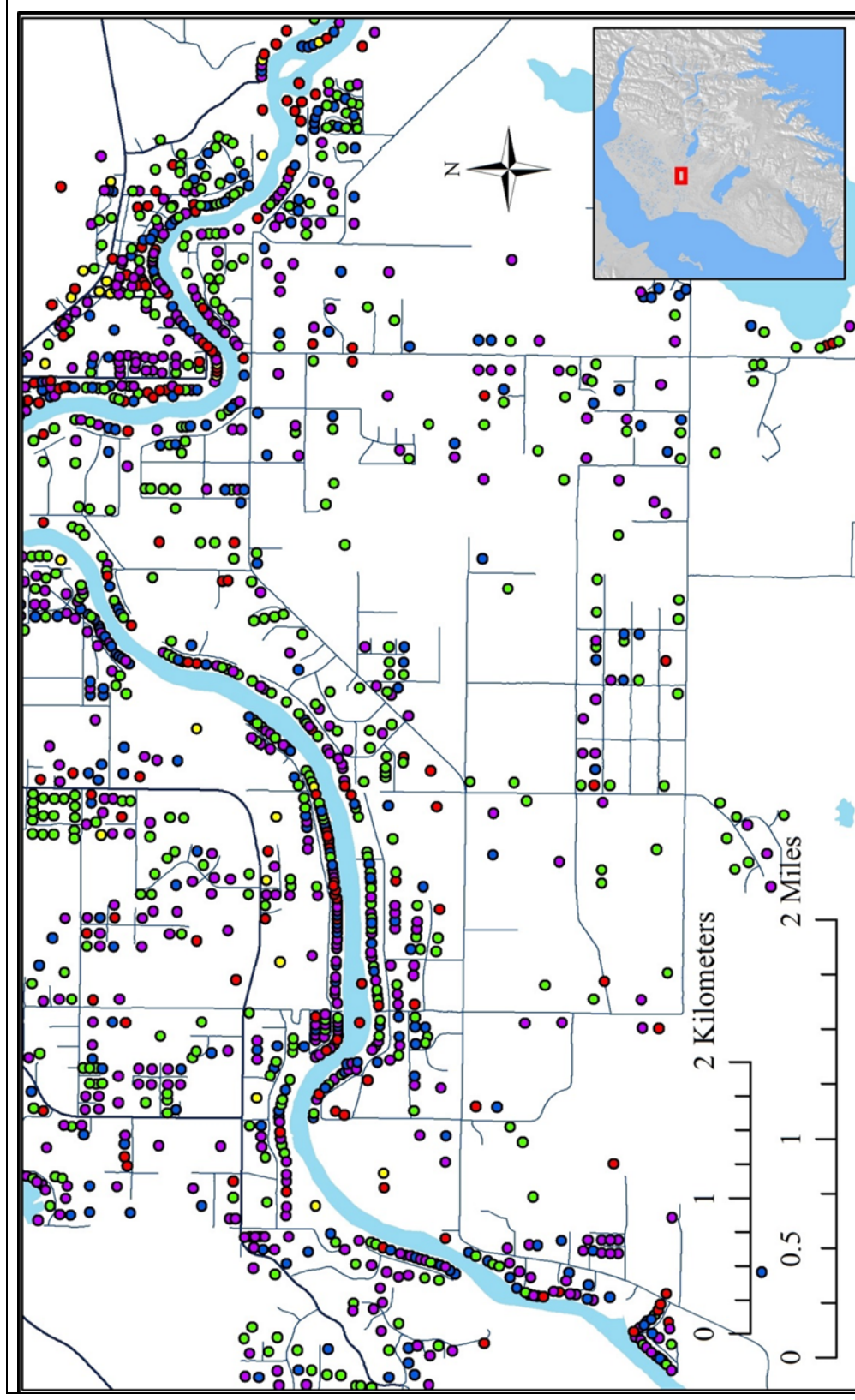


Map 61: Centroid point display of first development of parcels, between Soldotna and Sterling. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



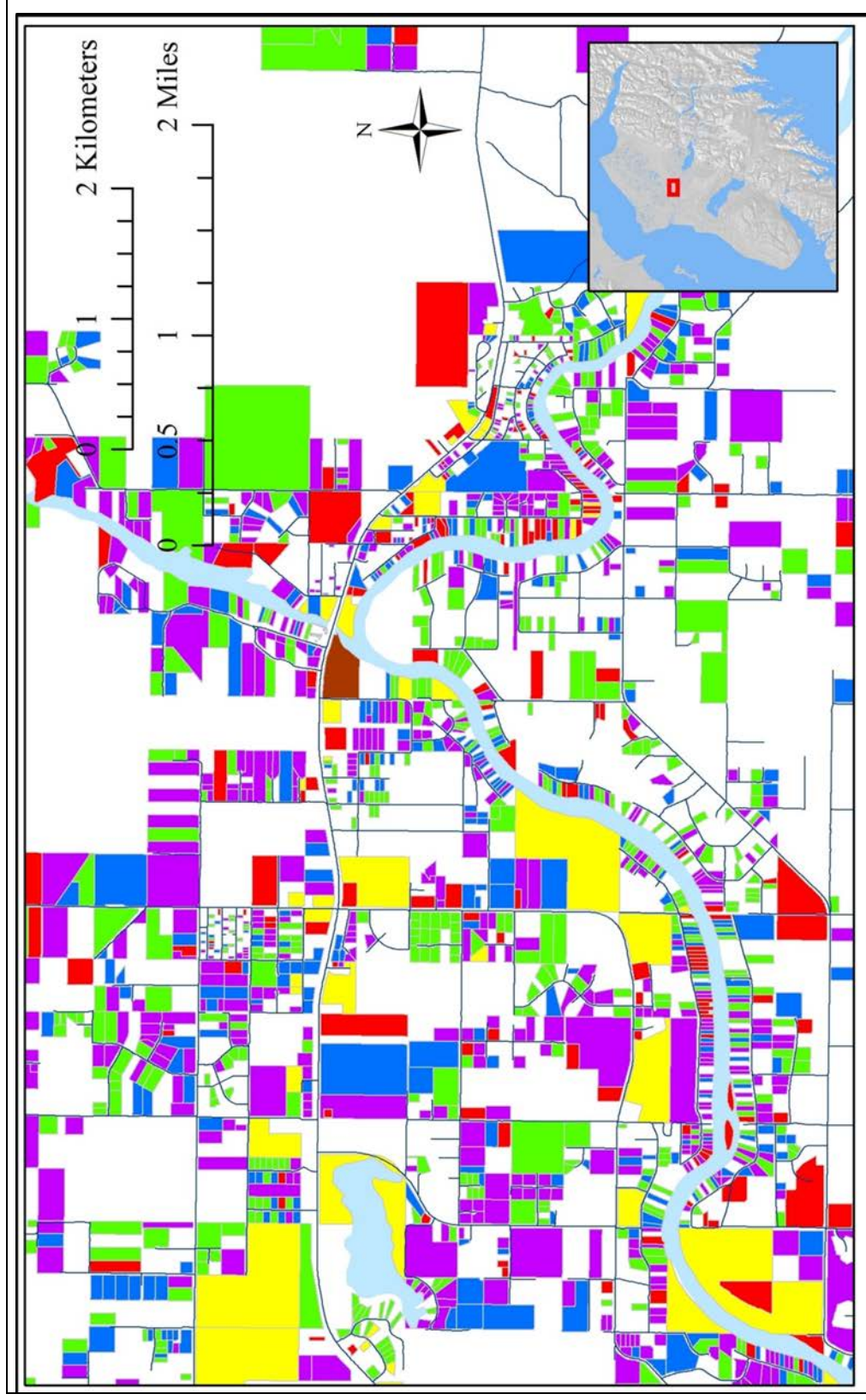


Map 62: First development of parcels, Funny River area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



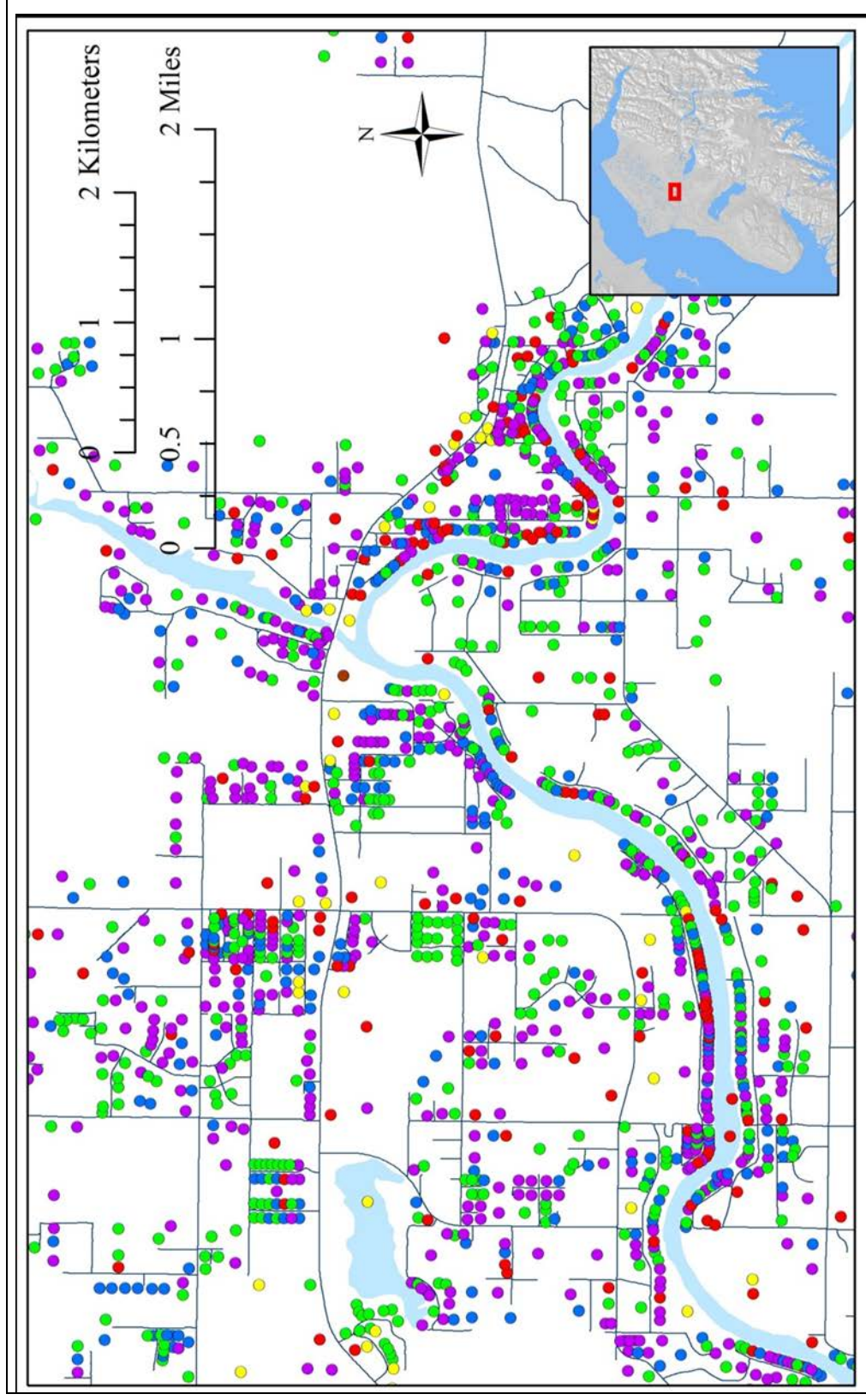
Map 63: Centroid point display of first development of parcels, Funny River area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.



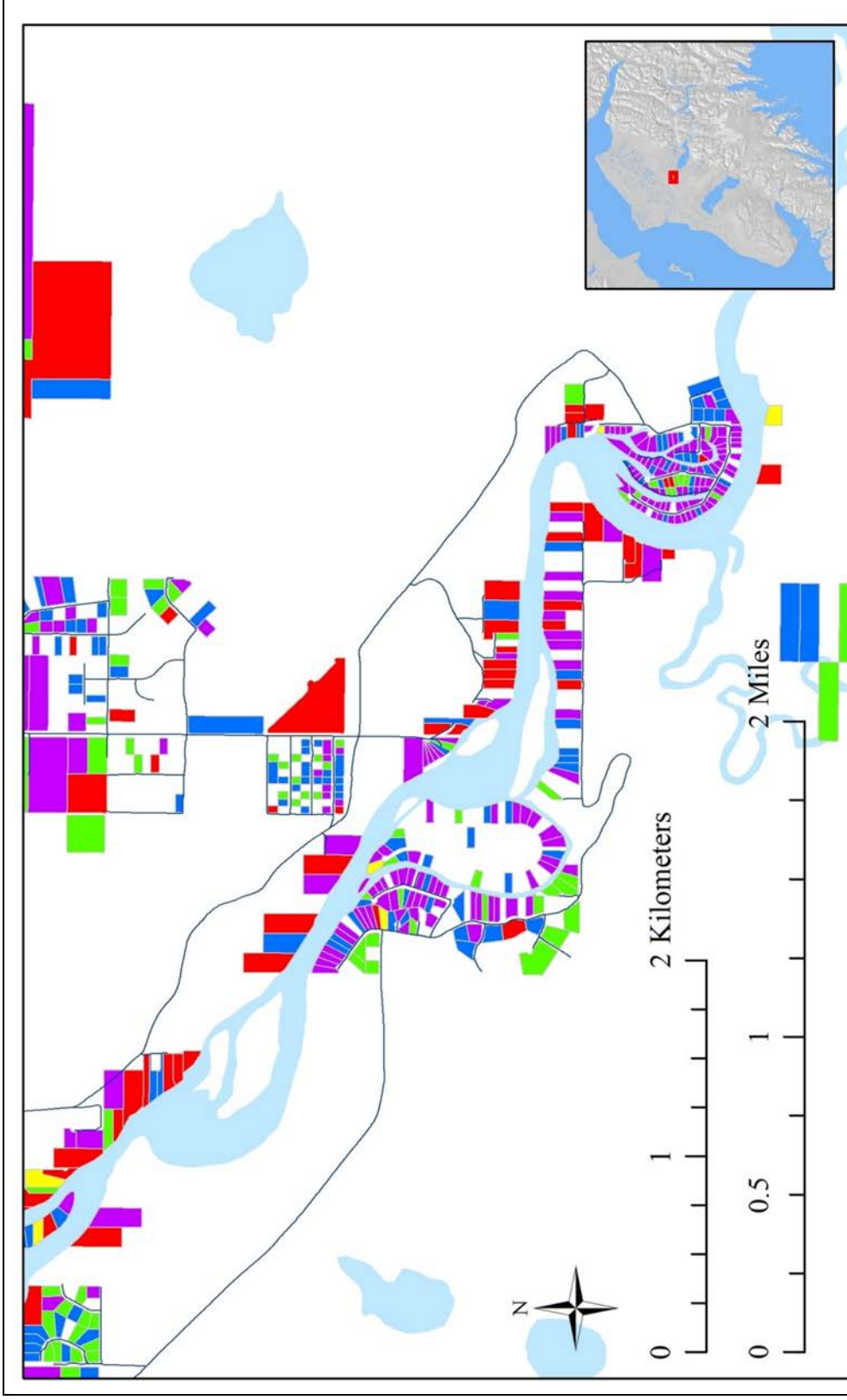


Map 64: First development of parcels, Sterling area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.

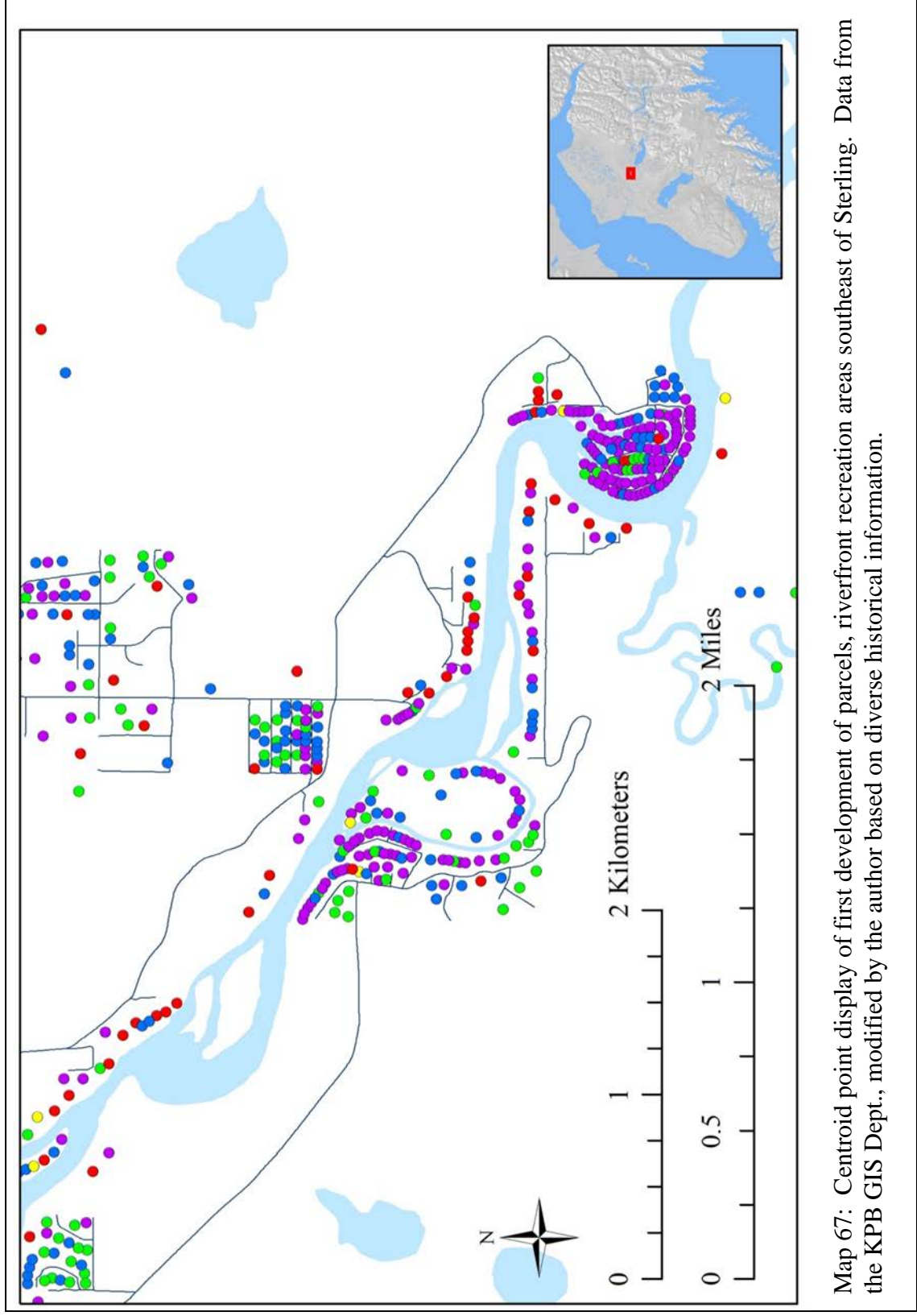




Map 65: Centroid point display of first development of parcels, Sterling area. Data from the KPB GIS Dept., modified by the author based on diverse historical information.

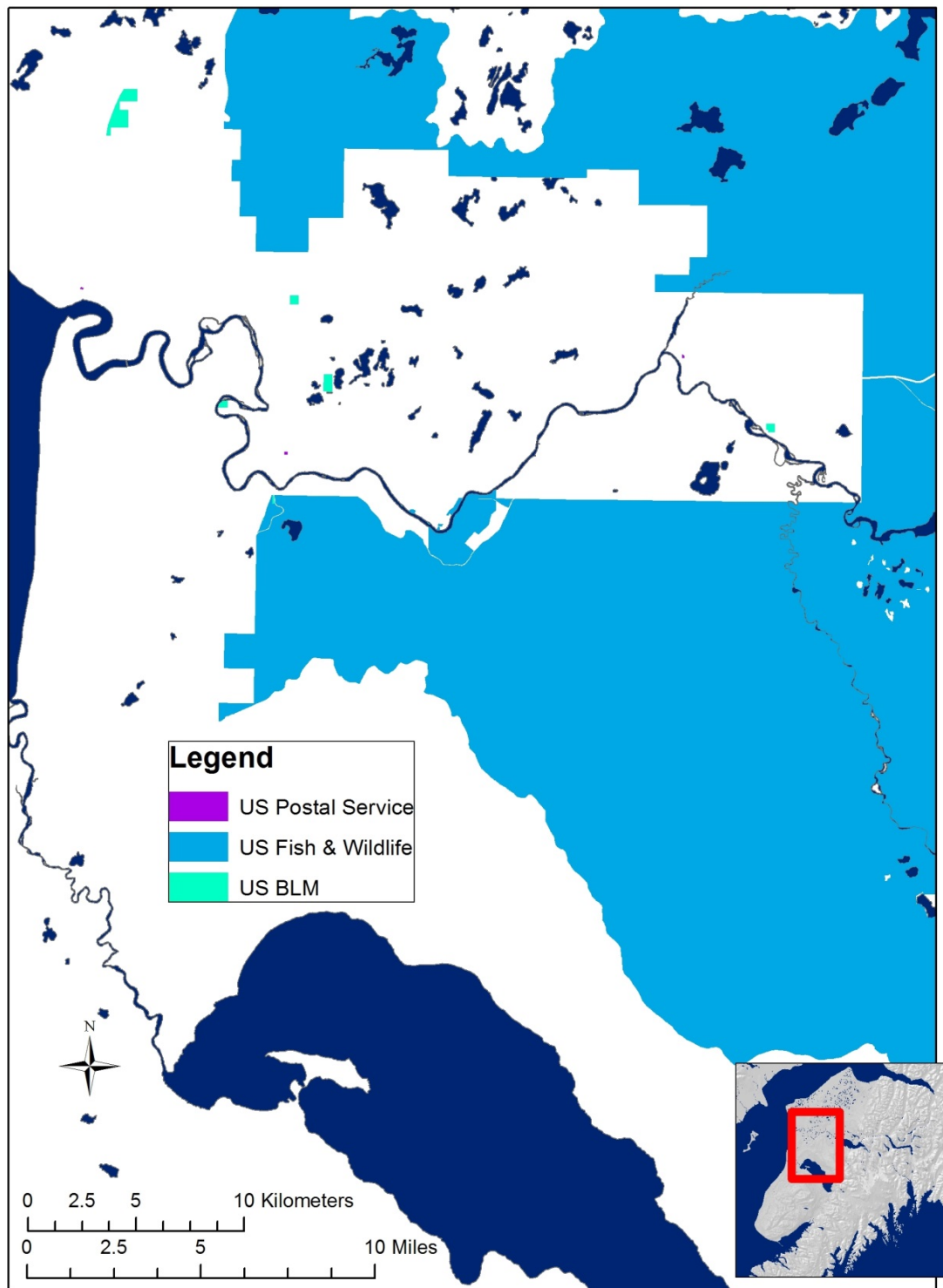


Map 66: First development of parcels, riverfront recreation areas southeast of Sterling. Data from the KPB GIS Dept., modified by the author based on diverse historical information.

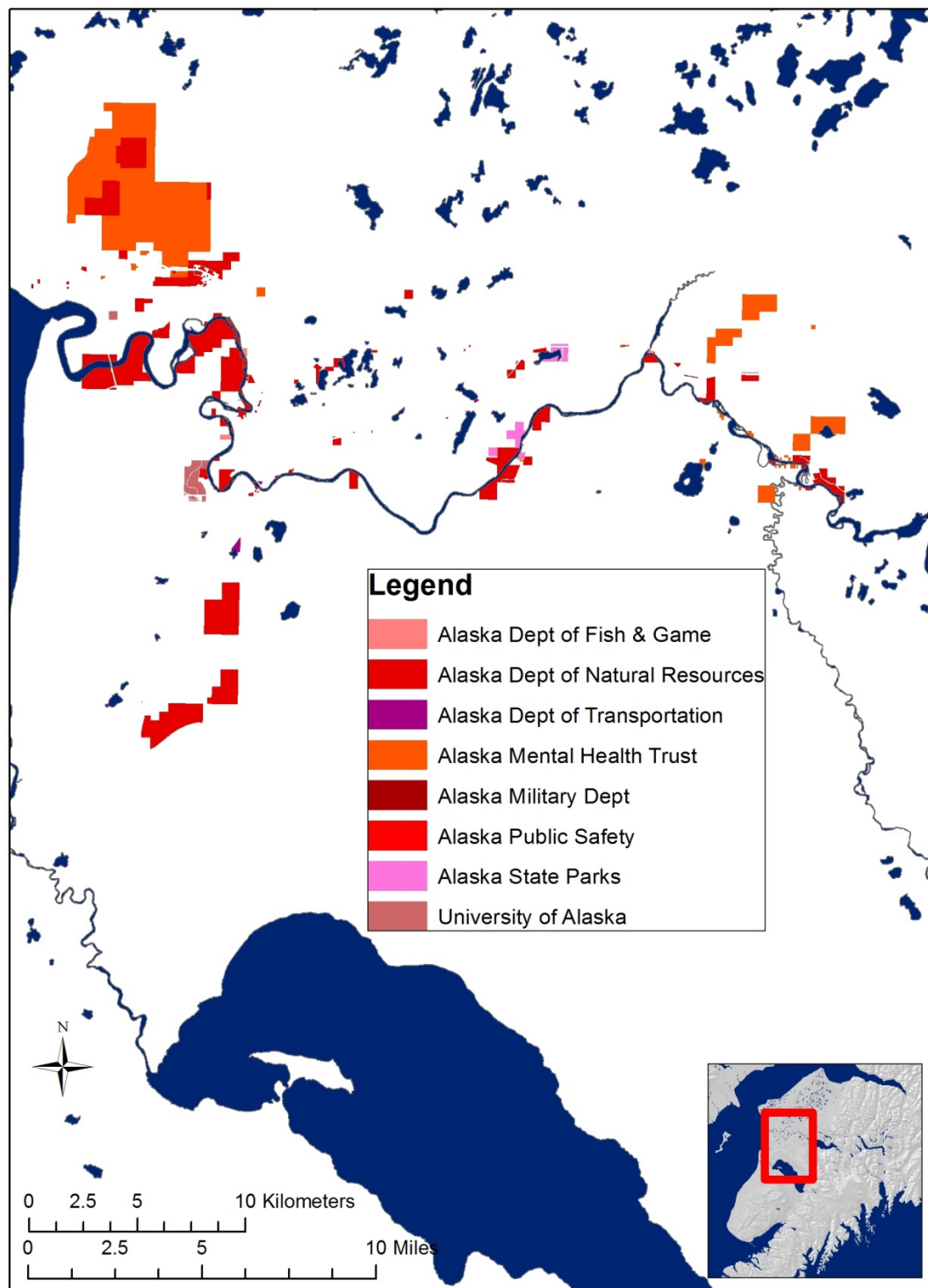


Map 67: Centroid point display of first development of parcels, riverfront recreation areas southeast of Sterling. Data from the KPB GIS Dept., modified by the author based on diverse historical information.

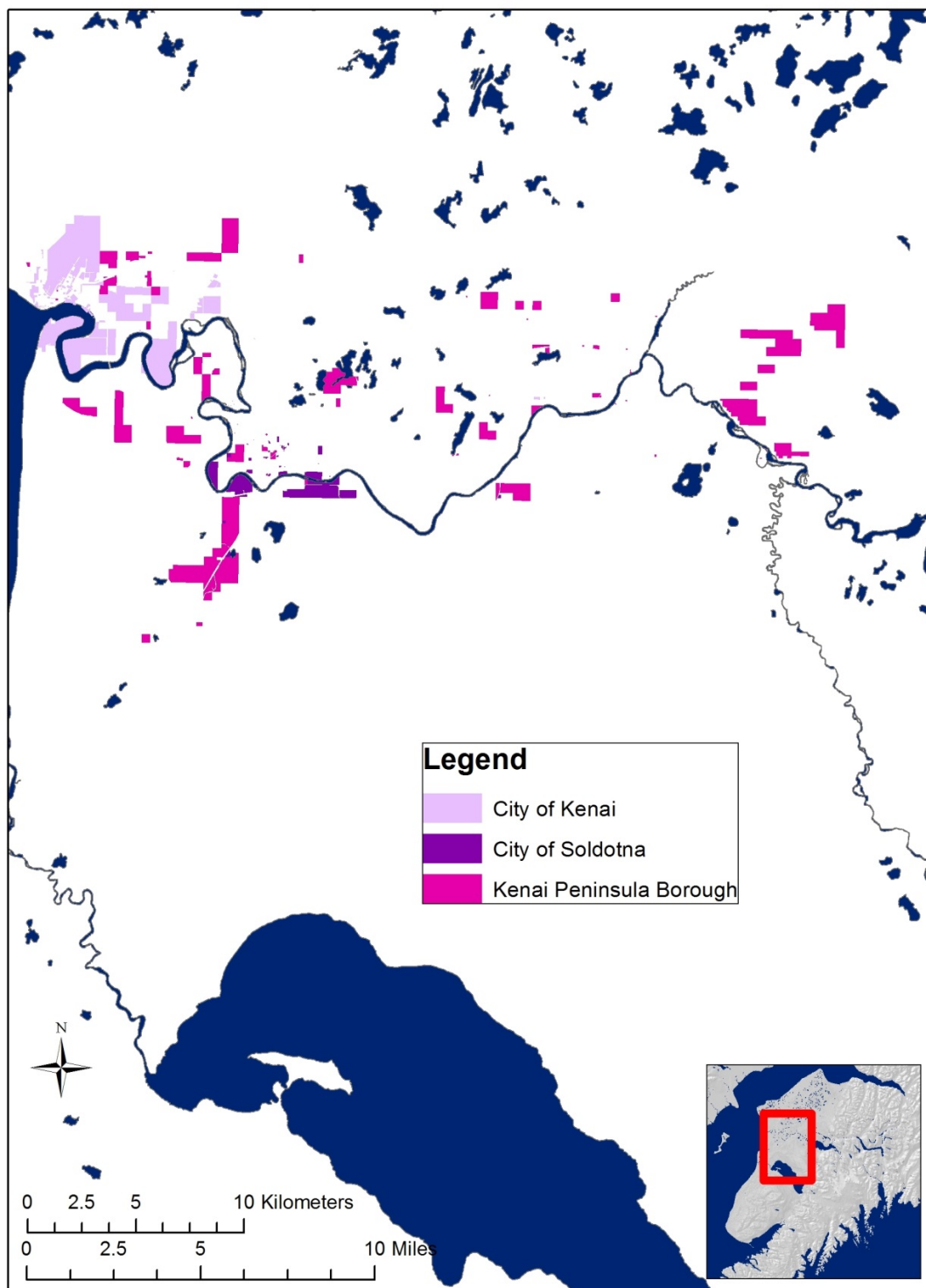




Map 68: Federal land ownership in the lower Kenai River Watershed as of 2005. Data from the KPB GIS Dept.

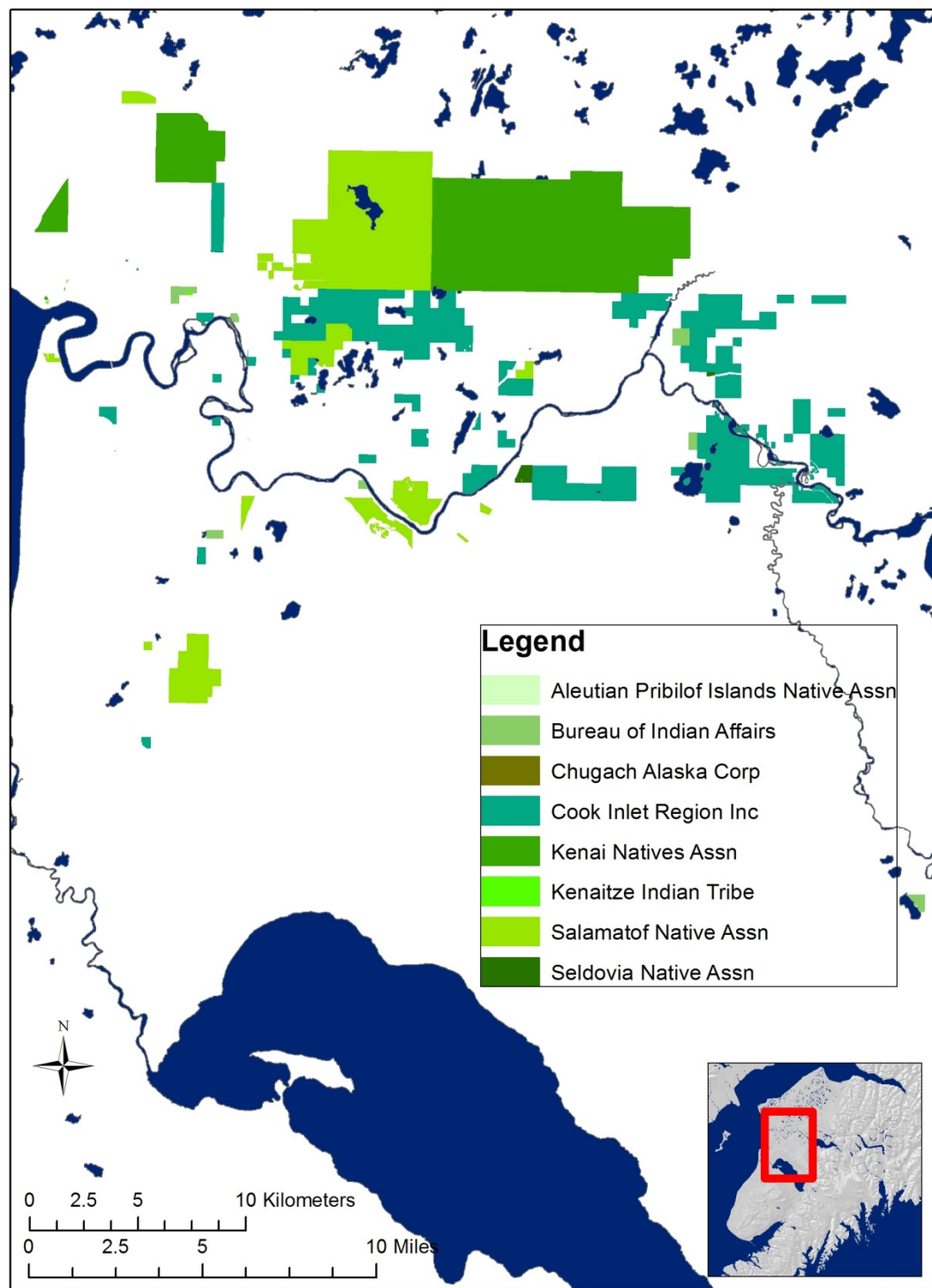


Map 69: State land ownership in the lower Kenai River Watershed as of 2005. Data from the KPB GIS Dept.

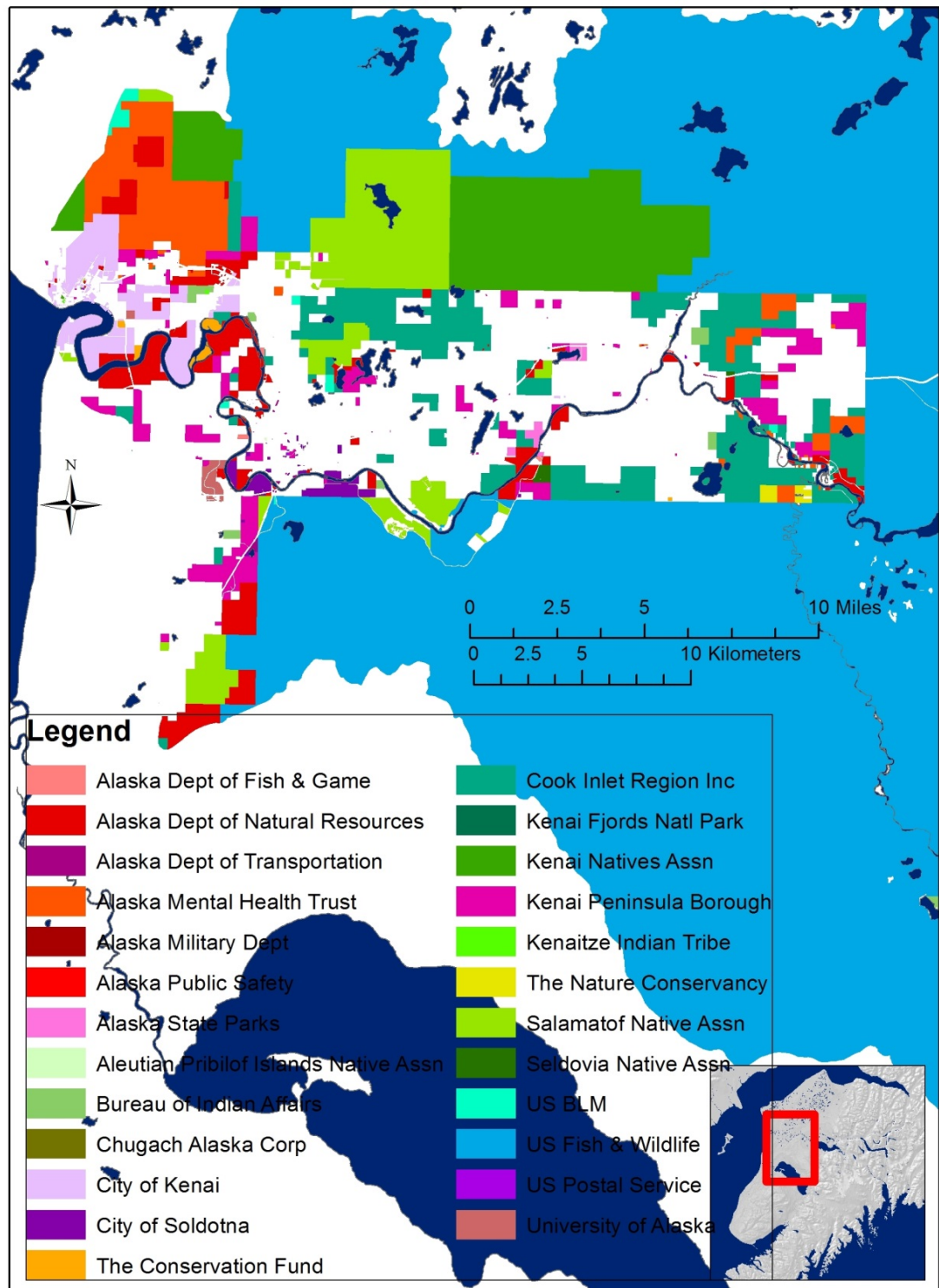


Map 70: Municipal land ownership in the lower Kenai River Watershed as of 2005. Data from the KPB GIS Dept.

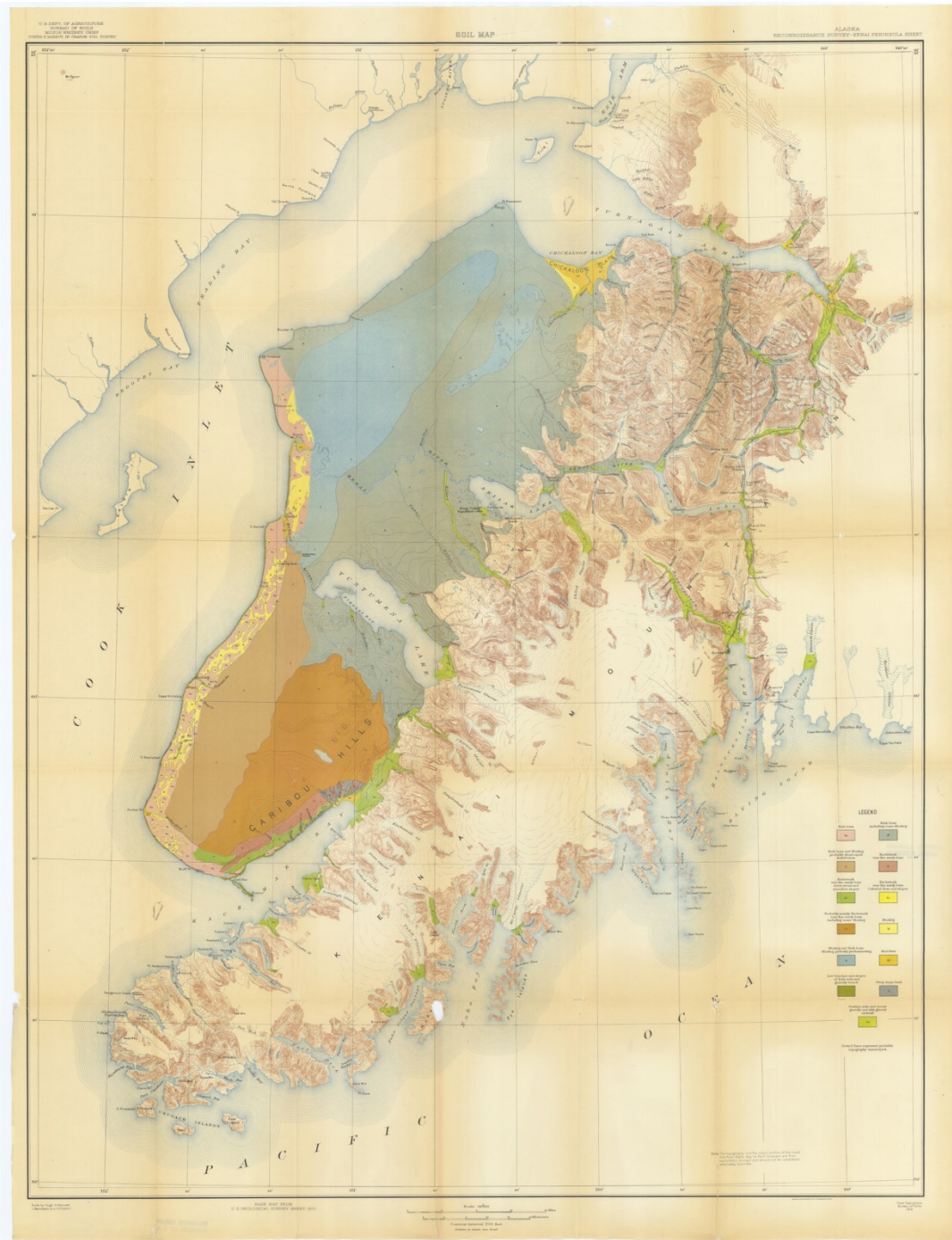




Map 71: Native tribes' and corporations' land ownership in the lower Kenai River Watershed as of 2005. Data from the KPB GIS Dept.



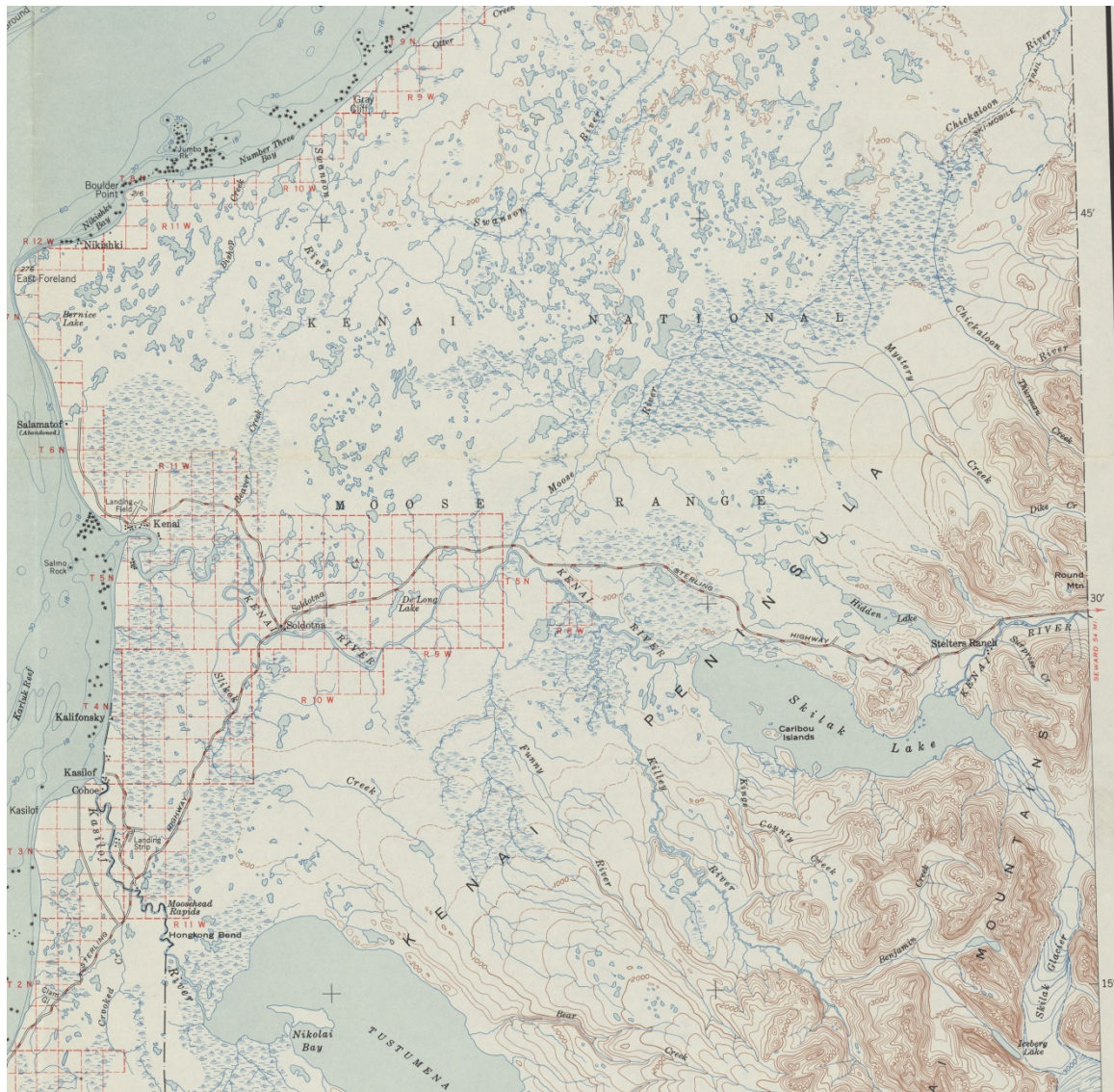
Map 72: Government and Native land ownership in the lower Kenai River Watershed as of 2005. Composite of information shown in maps 68 through 71. Data from the KPB GIS



Map 73: USDA, 1916, "Soil Map." This map was in the pocket of Bennett, Hugh H (1918) *Report on a Reconnaissance [sic] of the Soils, Agriculture and Other Resources of the Kenai Peninsula Region of Alaska*; US Dept. of Agriculture, Bureau of Soils. The map and another, focused on minerals, are the result of a federal expedition in 1916 to investigate area resources, described in the report text. For a high resolution copy of this map, see the folder "HighResolutionMaps."







Map 75: USGS, 1950, Kenai Quad map, lower river detail. This is subtly different from other USGS topographic maps of the area also dated 1950. It cites aerial imagery from 1941 as a source (the others use 1950 imagery), and it shows townships surveyed for homestead entry, but does not show all of T5N, R11W as surveyed.



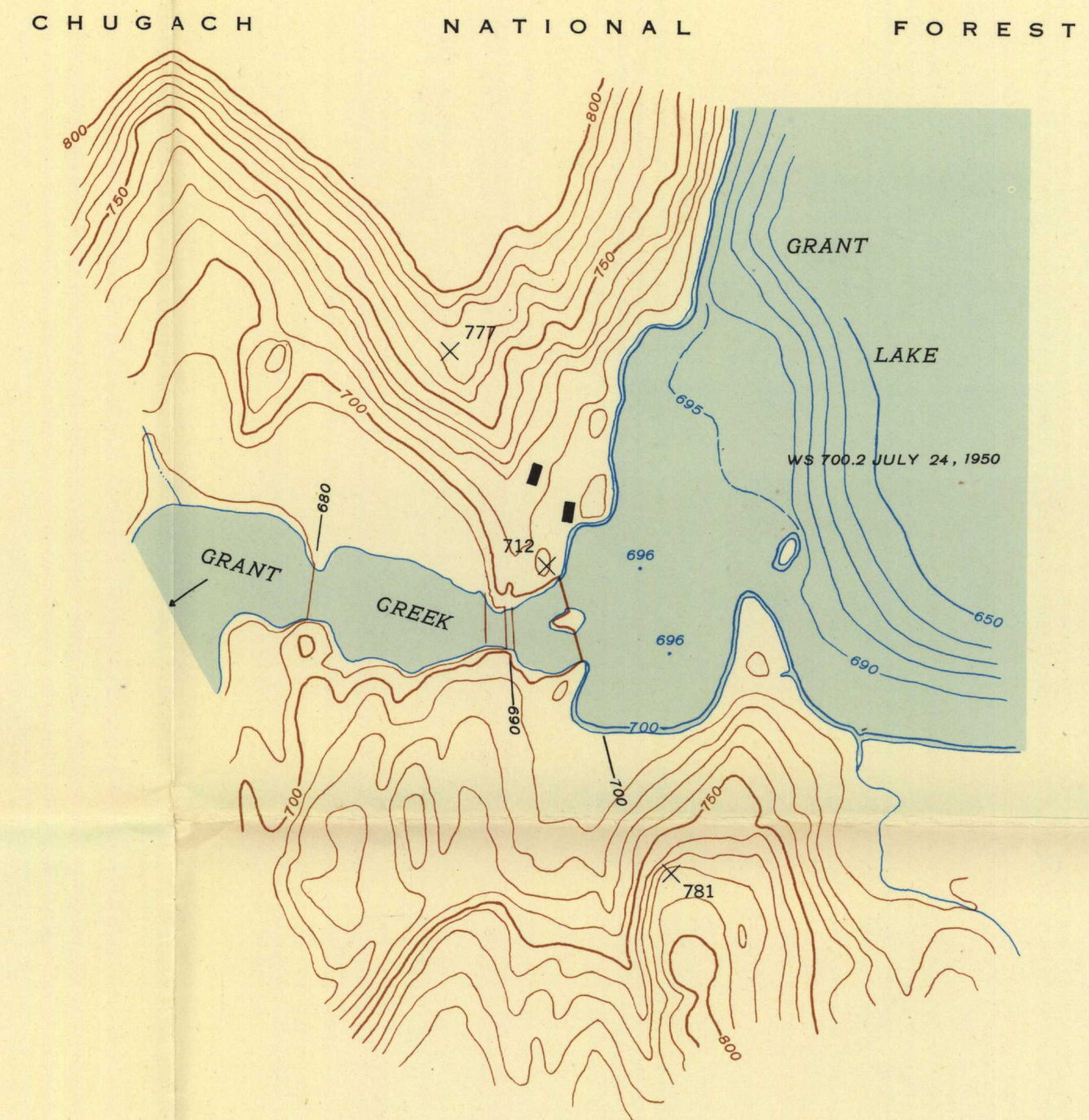
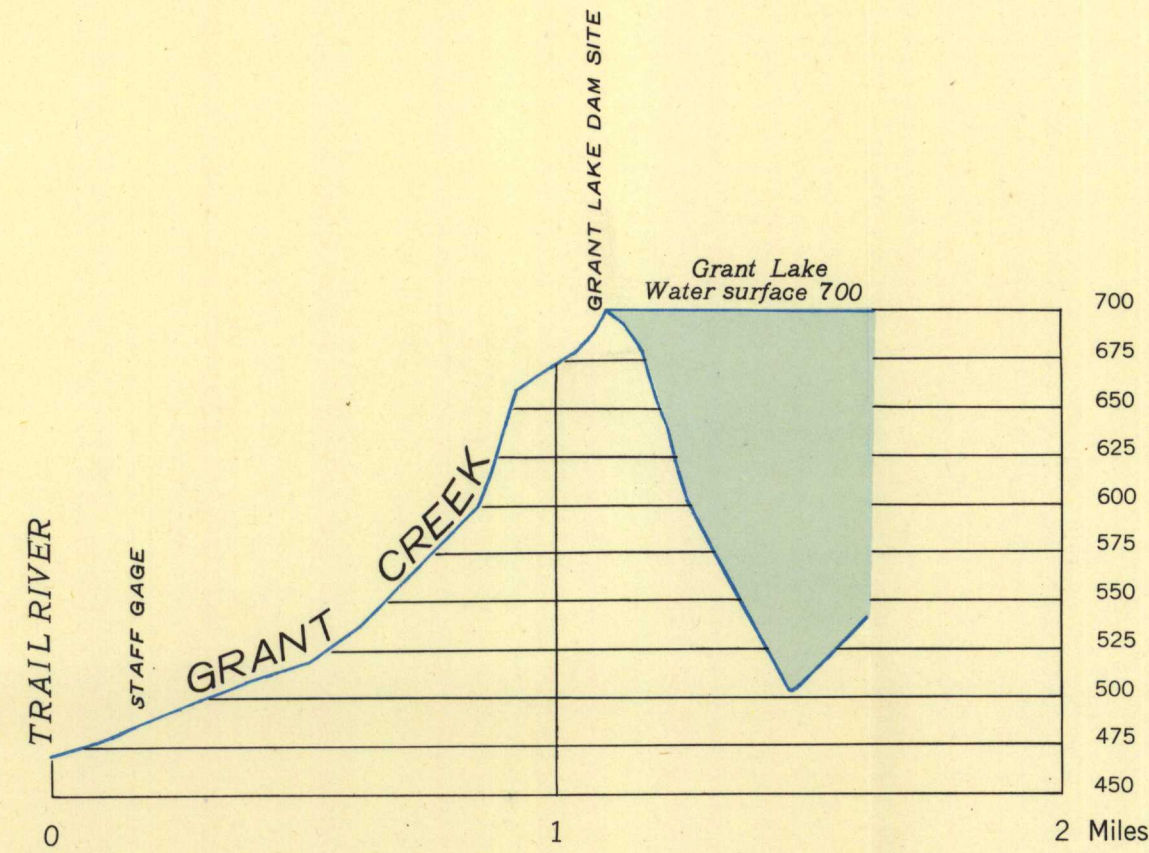




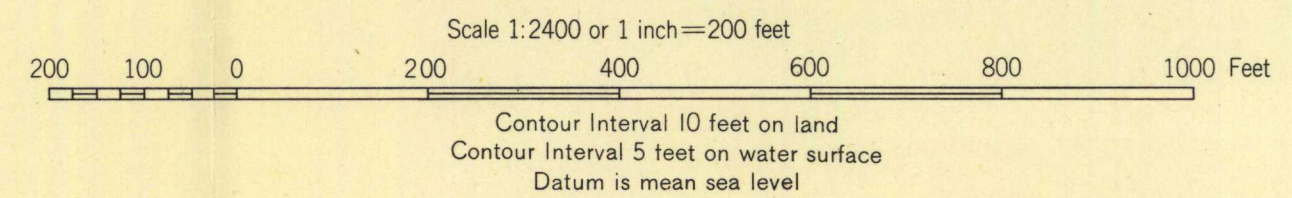
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

PLAN AND PROFILE  
GRANT CREEK AND GRANT LAKE, ALASKA  
DAM SITE

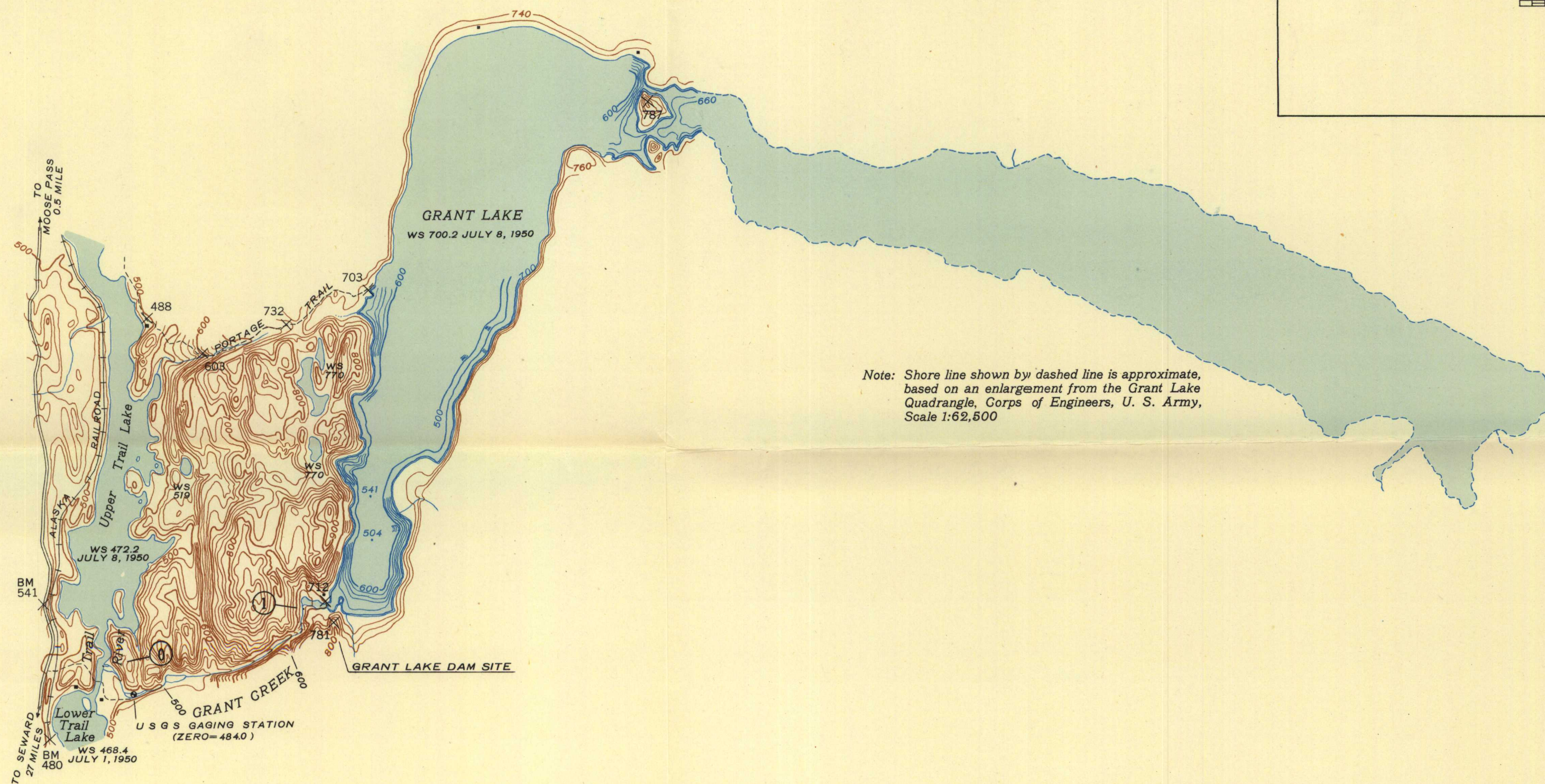
ONE SHEET



GRANT LAKE DAM SITE



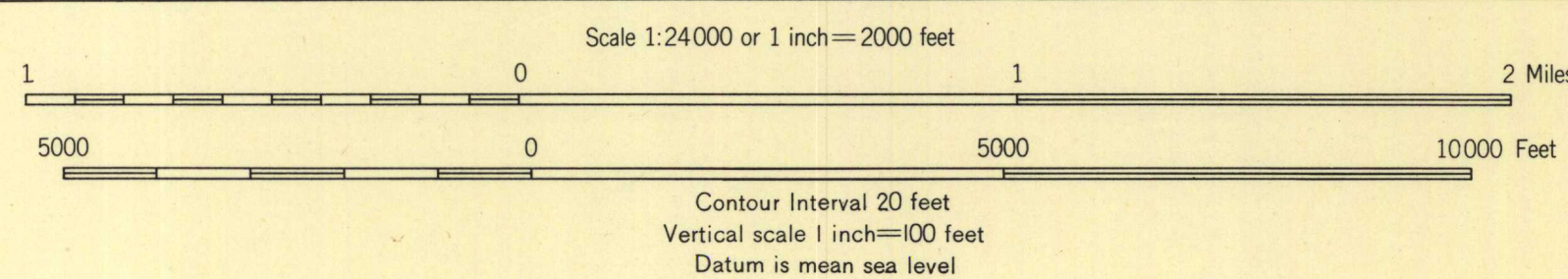
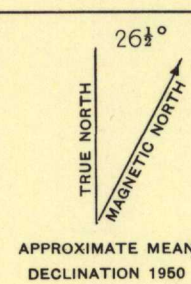
CHUGACH NATIONAL FOREST



Note: Shore line shown by dashed line is approximate, based on an enlargement from the Grant Lake Quadrangle, Corps of Engineers, U. S. Army, Scale 1:62,500



Topography by Gordon C. Giles  
Surveyed in 1950

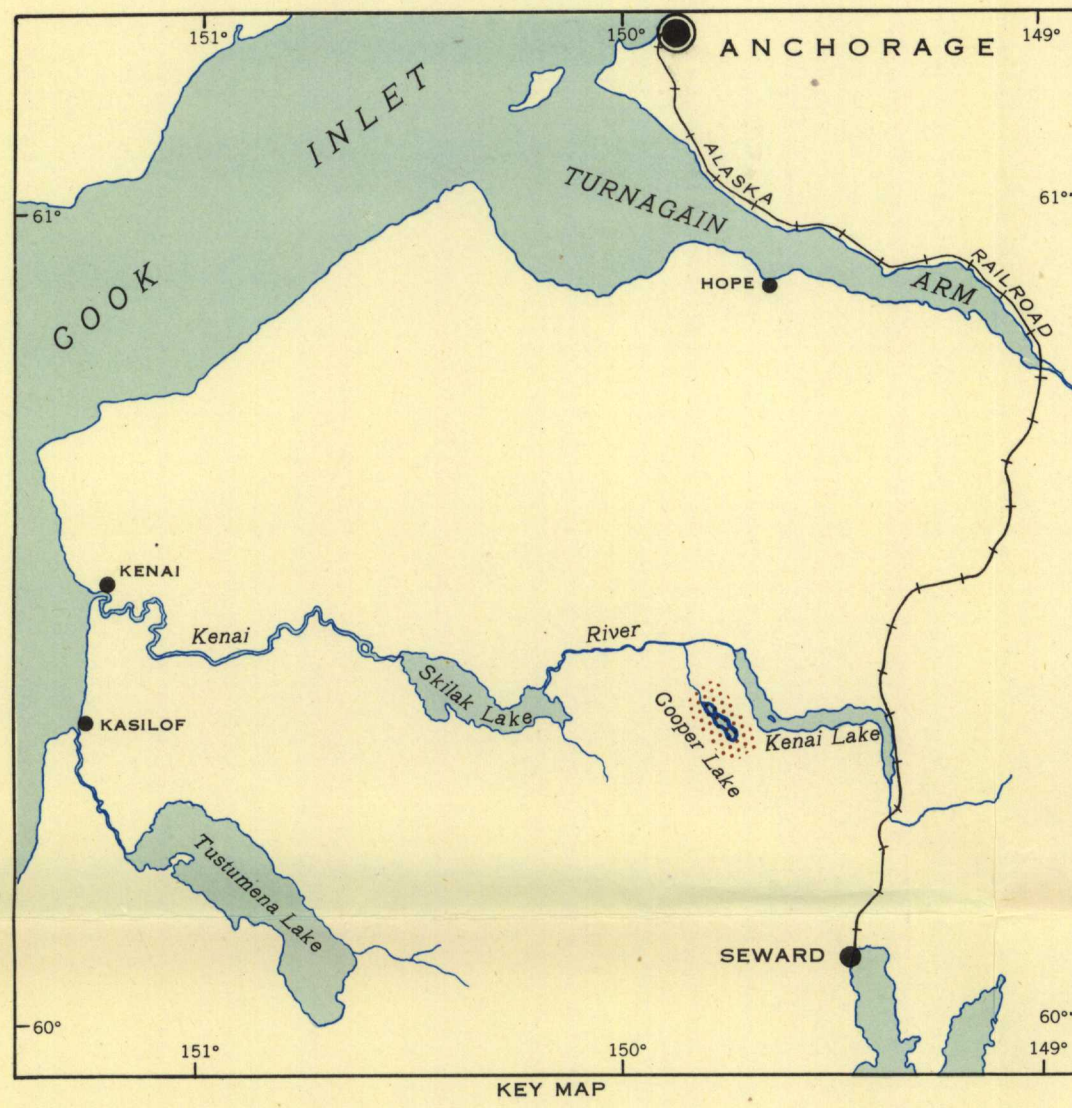


Subject to adjustment  
All crosses (X) are plane table bench marks except those marked B M

GRANT CREEK AND GRANT LAKE  
ALASKA  
Printed in 1951

ONE SHEET





PLAN  
COOPER LAKE, ALASKA  
DAM SITE



COOPER LAKE DAM SITE

Scale 1:4800 or 1 inch=400 feet

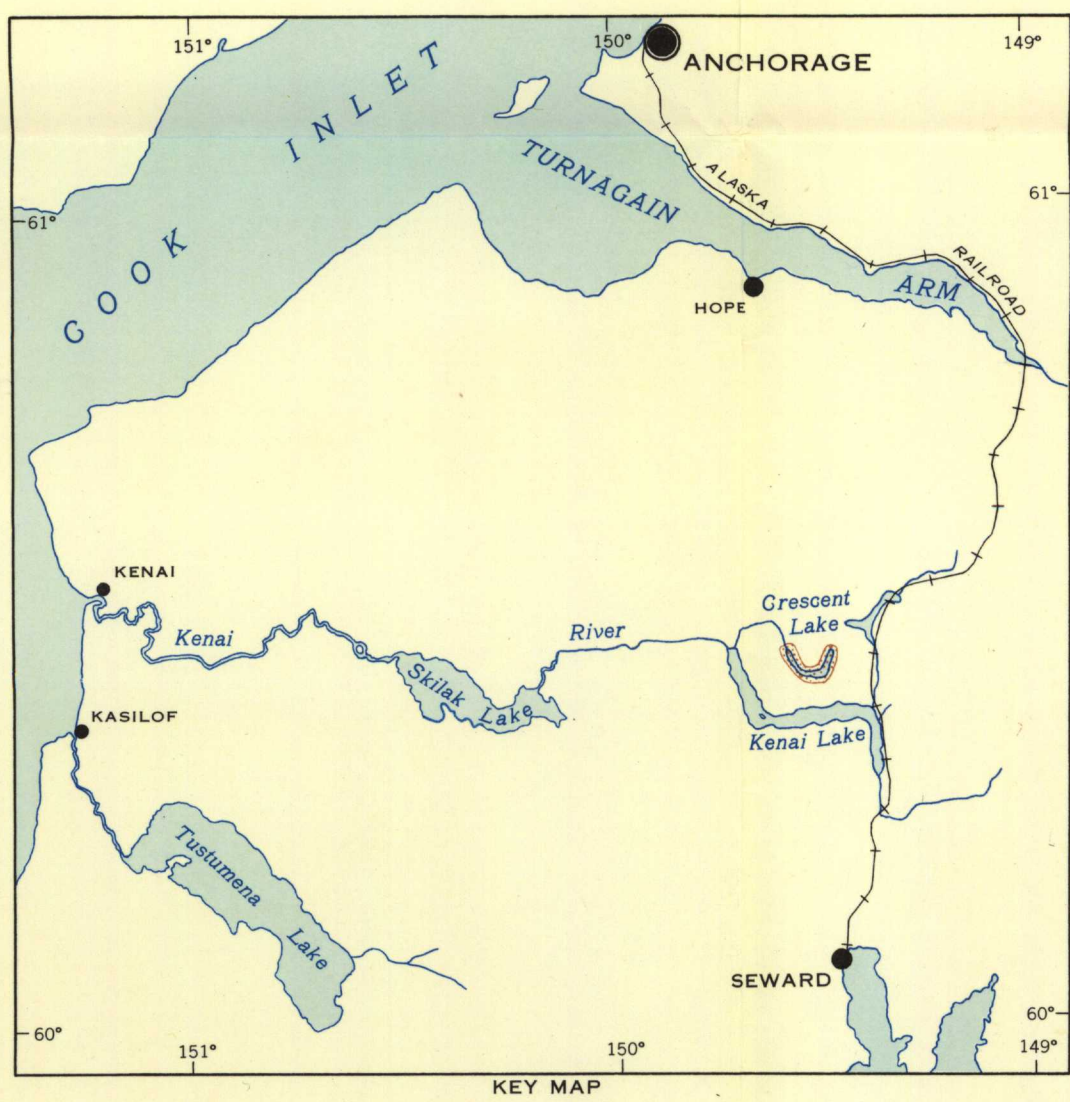
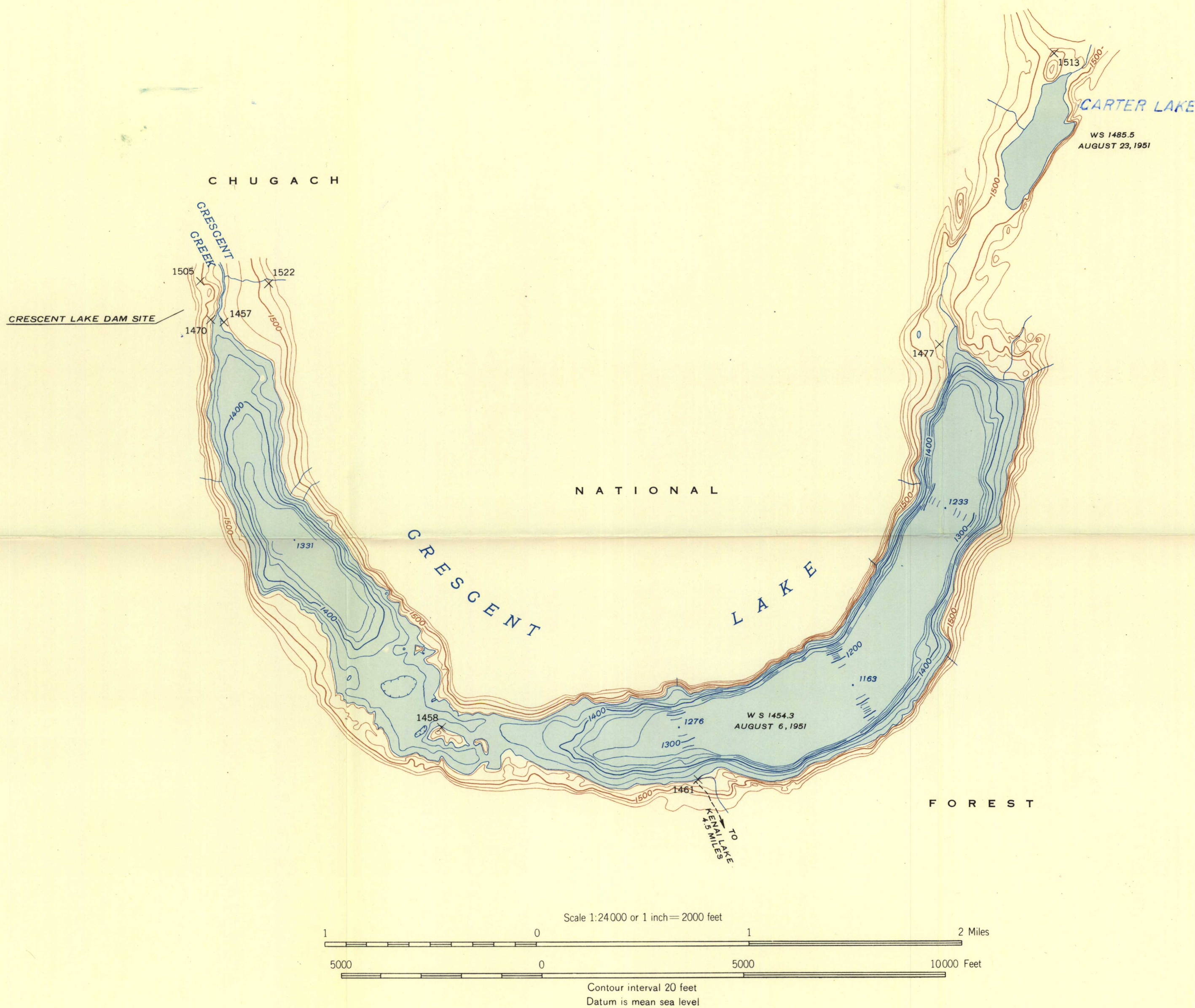
400 200 0 400 800 1200 Feet

Contour interval on land 10 feet

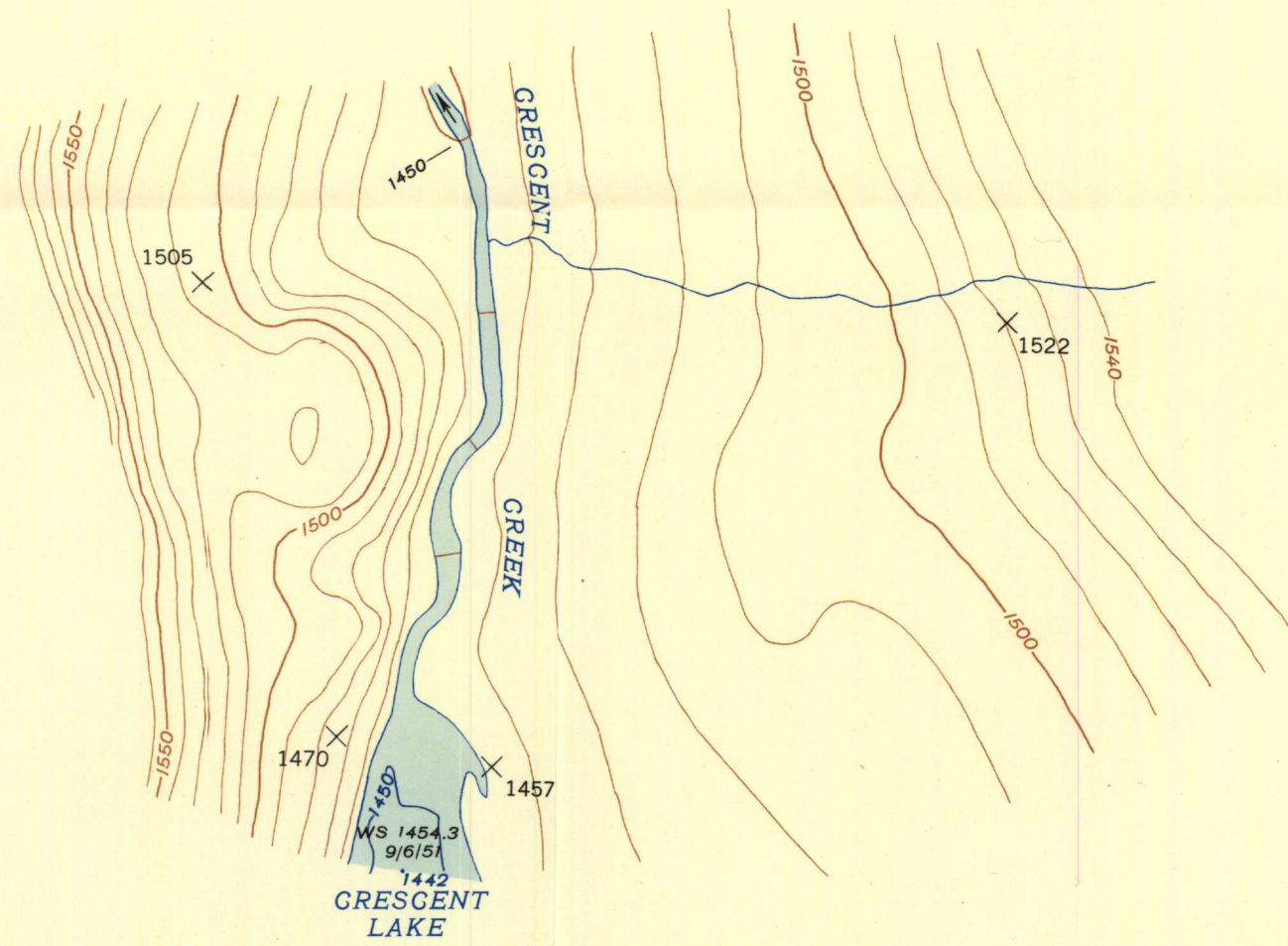
Contour interval on water surface 5 feet

Datum is mean sea level



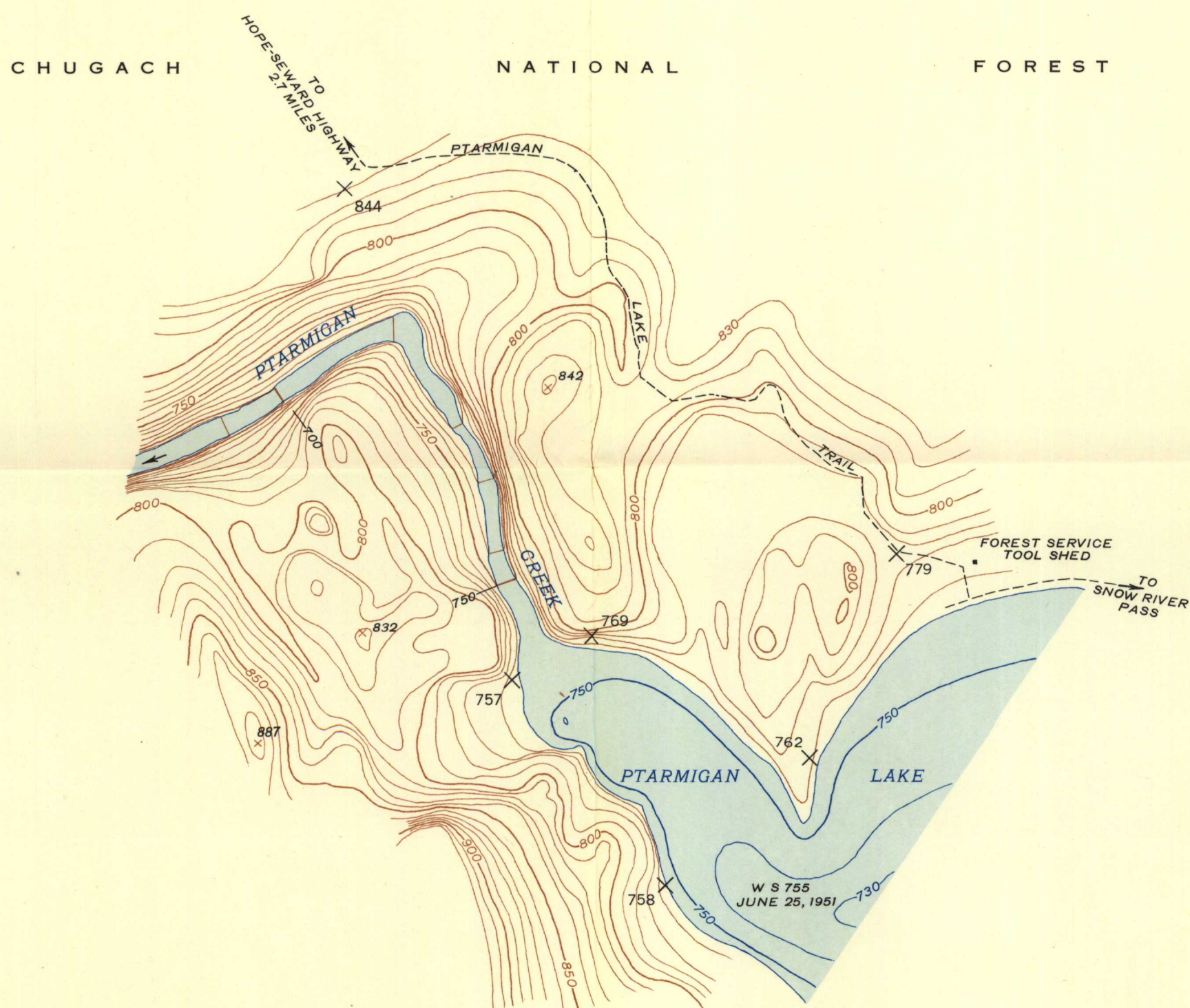


CHUGACH NATIONAL FOREST



CRESCENT LAKE DAM SITE





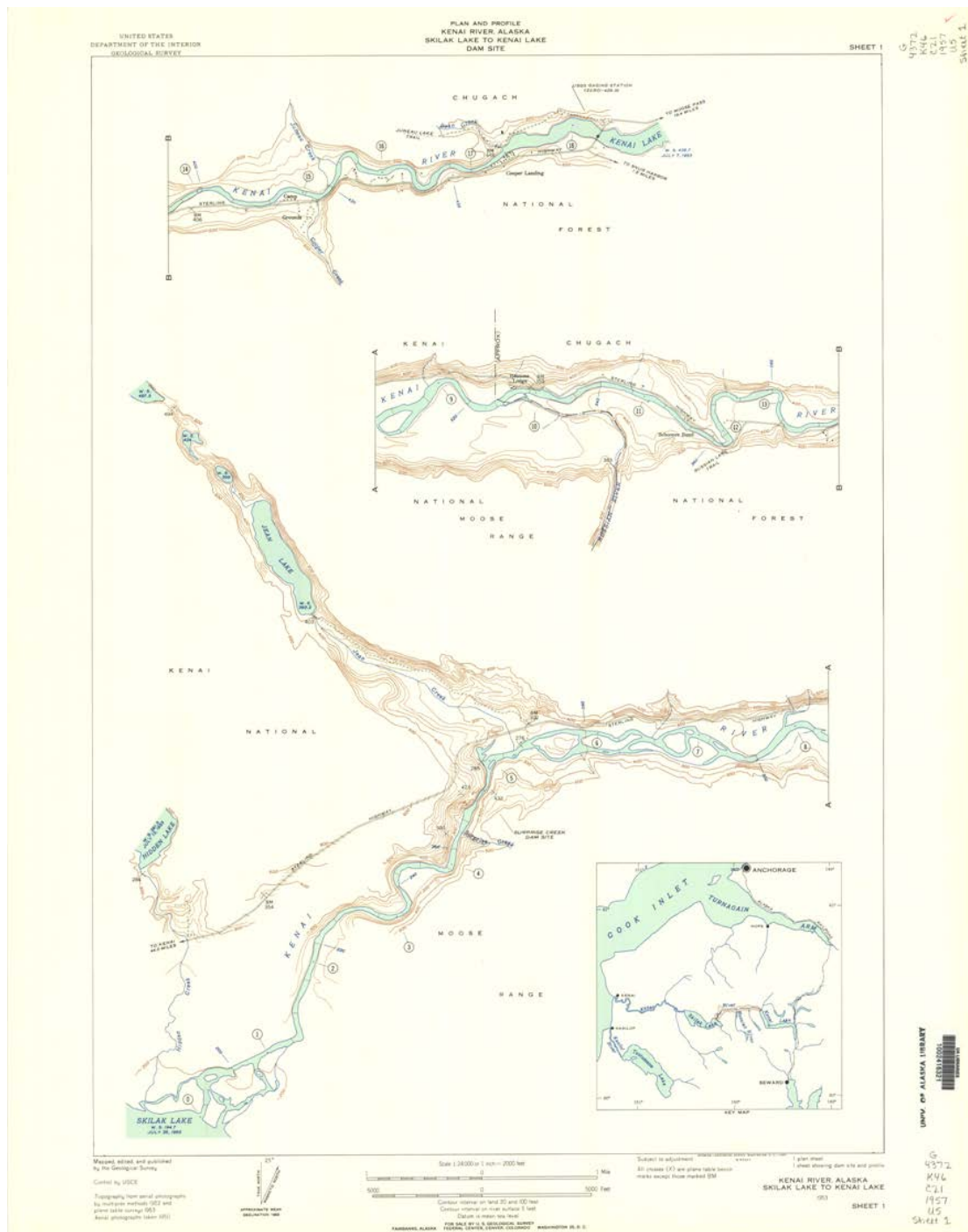
PTARMIGAN LAKE DAM SITE

Scale 1:2400 or 1 inch=200 feet  
Contour interval 10 feet  
Datum is mean sea level

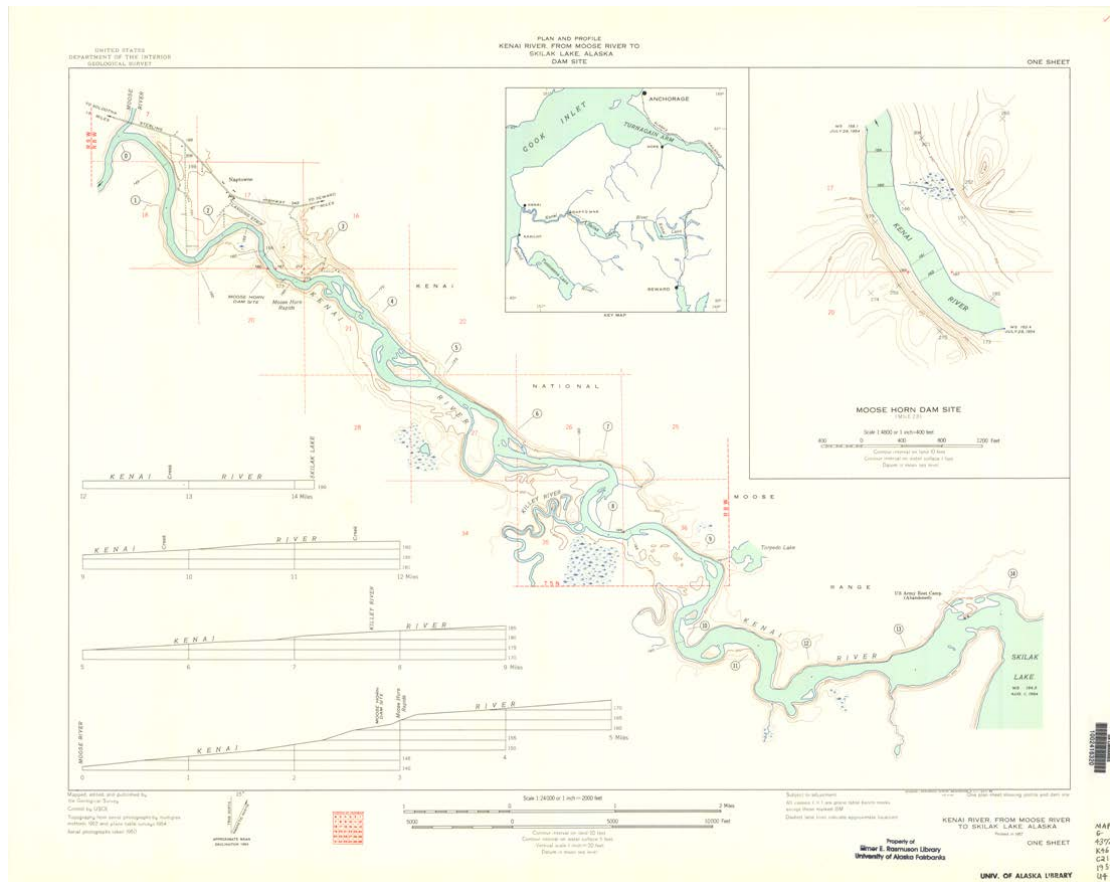


KEY MAP



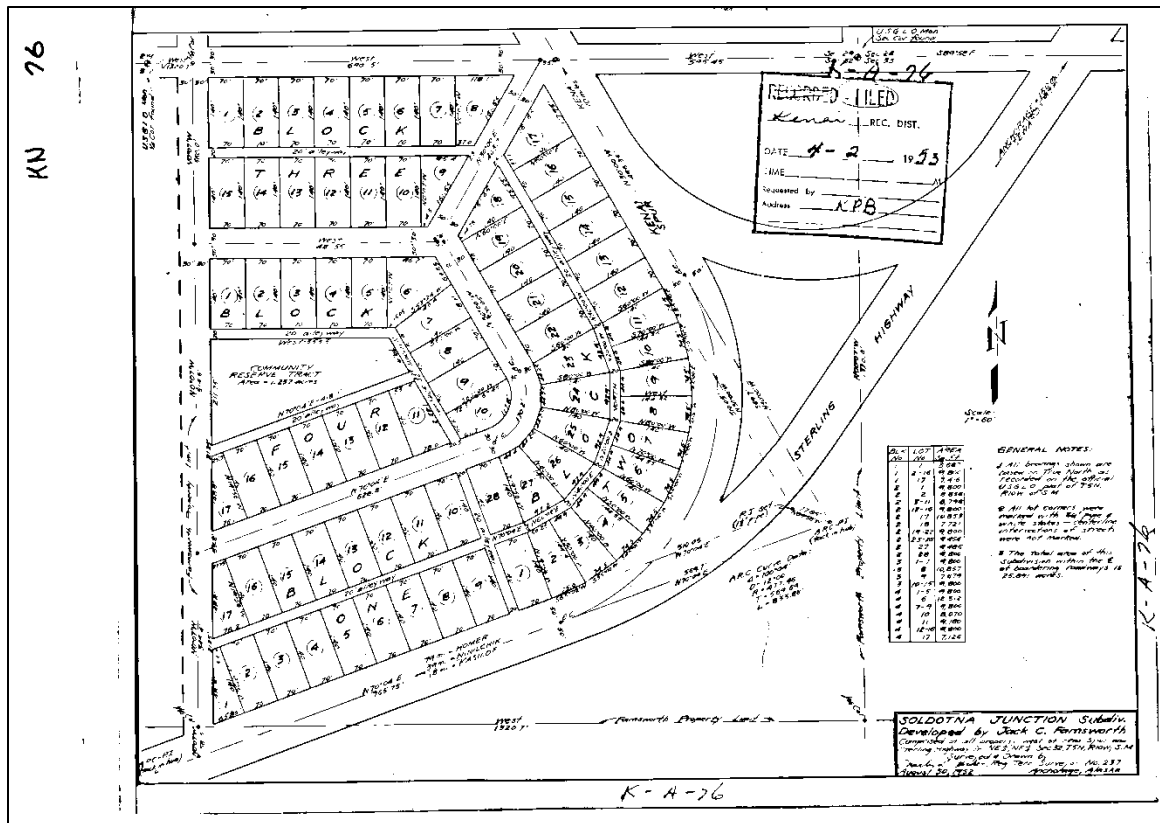


Map 81: USGS, 1953, "Plan and Profile Kenai River, Alaska, Skilak Lake to Kenai Lake, Dam Site." Map includes a detailed survey of the upper river's riparian area and identification of potential dam sites, based on 1950 photographs and 1953 field work. Scan of original map from the Elmer E. Rasmuson Library map collection, University of Alaska Fairbanks. For a high resolution copy of this map, see the folder "HighResolutionMaps."



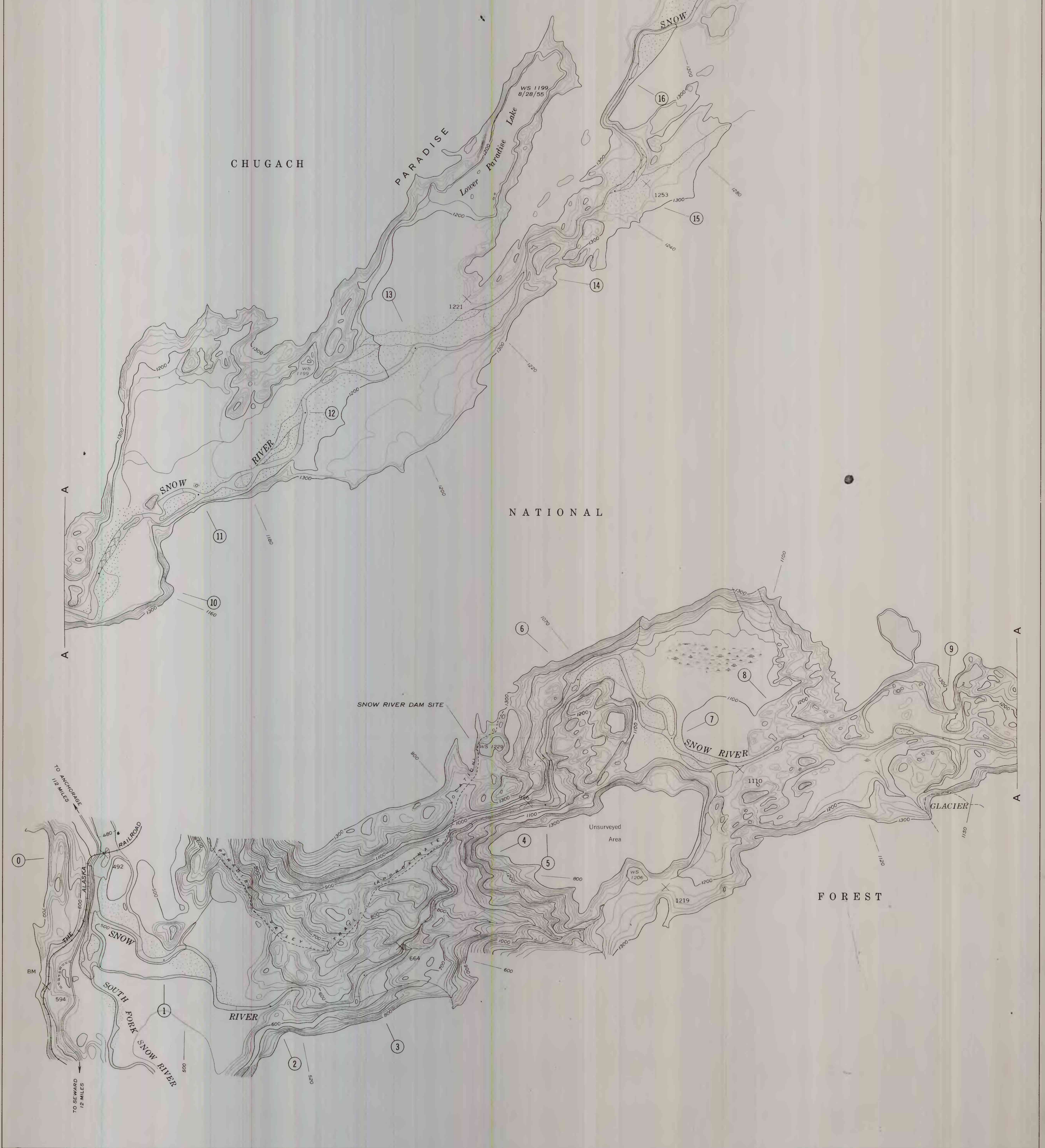
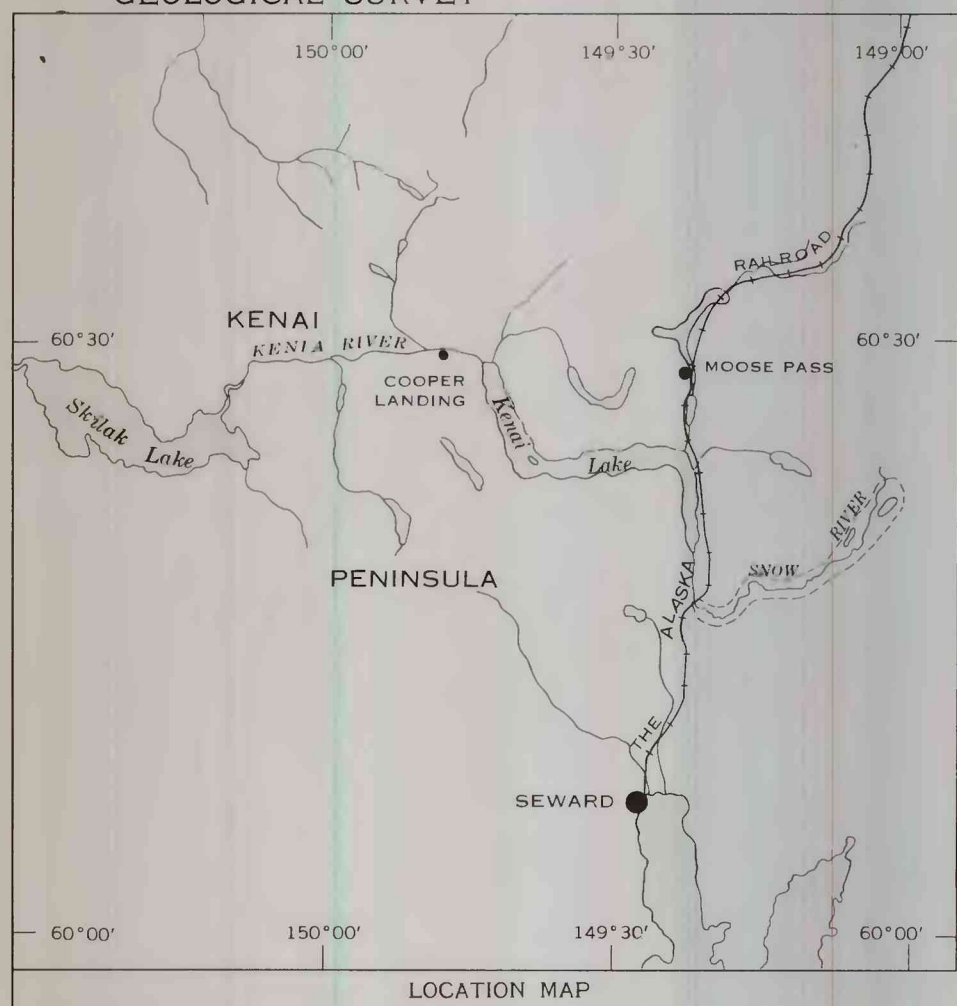
Map 82: USGS, 1957, “Plan and Profile Kenai River, from Moose River to Skilak Lake, Alaska, Dam Site.” Map includes a detailed survey of the riparian area and identification of potential dam sites, based on 1950 photographs and 1954 (?) field work. Note that the feature it labels as “Moosehorn Rapids” is called “Naptowne Rapids” in later sources. Scan of original map from the Elmer E. Rasmuson Library map collection, University of Alaska Fairbanks. For a high resolution copy of this map, see the folder “HighResolutionMaps.”



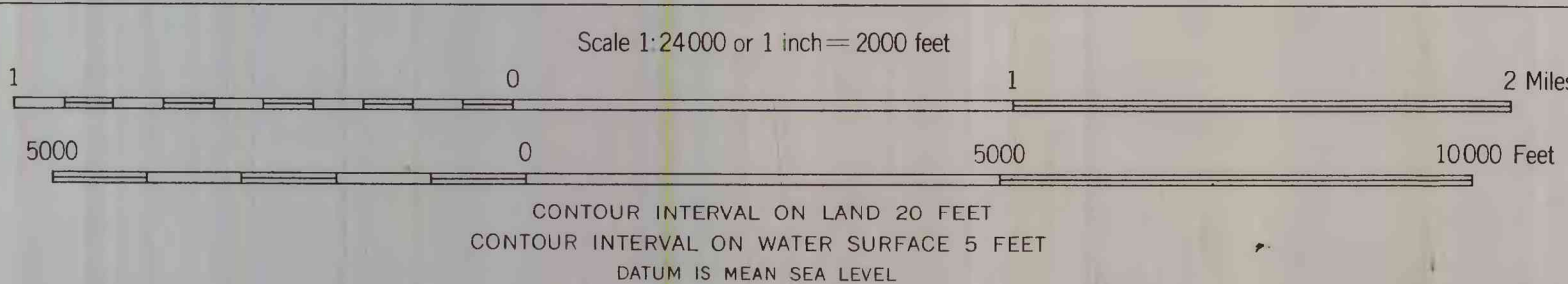
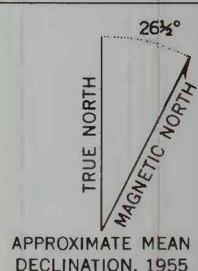


Map 83: Parker and Farnsworth, 1953, plat of Soldotna's first subdivision. The plat depicts Soldotna Junction subdivision, created by Jack and Dolly Farnsworth on their homestead at the junction of the Sterling Highway and the Kenai Spur Highway. Surveying and mapping was by Charlie Parker. Source: Kenai Peninsula Borough GIS Department subdivision plat query interactive web site, <http://www2.borough.kenai.ak.us/GISDept/GIS/BaseMapQuery/PlatQuery.asp>, Accessed 19 July 2010.





Mapped, edited, and published by the Geological Survey  
Control by USC&GS and USGS  
Topography from aerial photographs by Kelsh plotter methods  
in 1956 and planetable surveys in 1955  
Aerial photographs taken in 1950. Map not field checked  
Subject to adjustment  
All crosses (x) are planetable bench  
marks except those marked BM

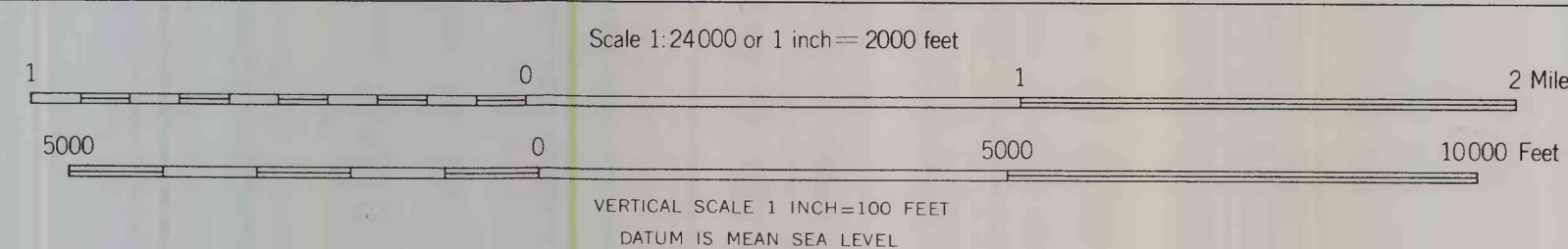
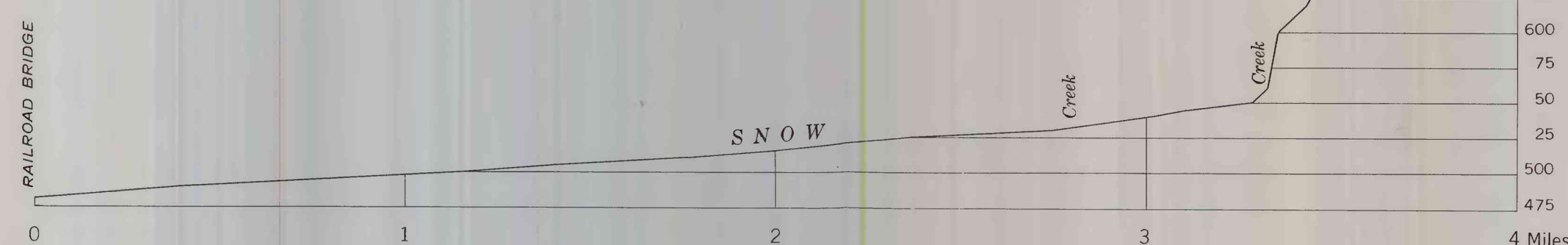
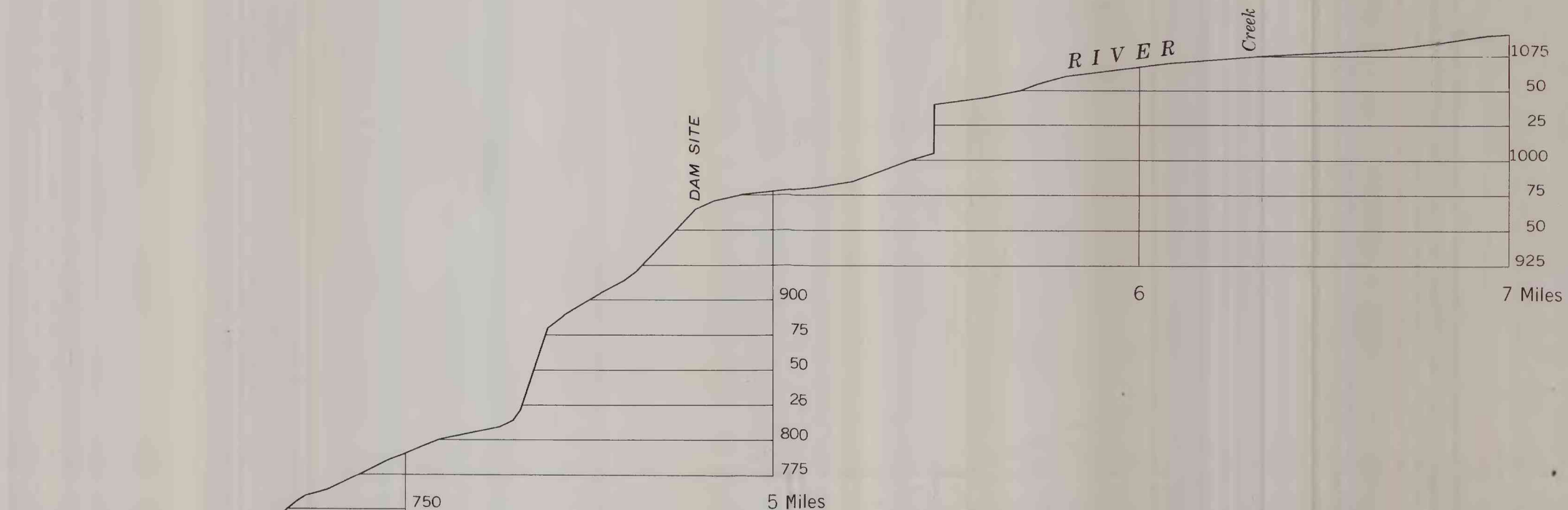
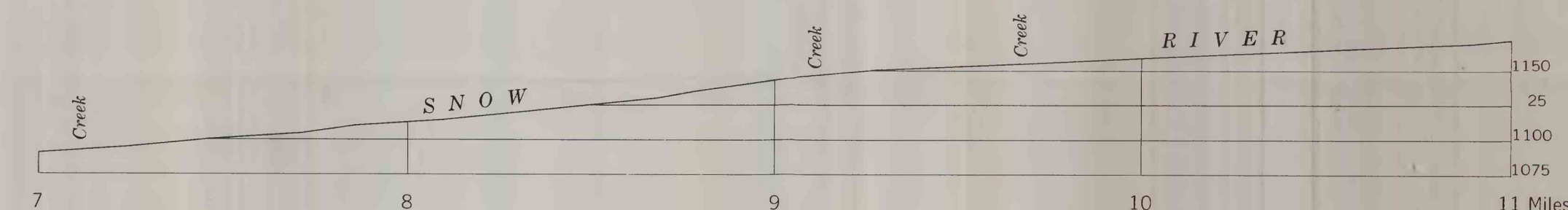
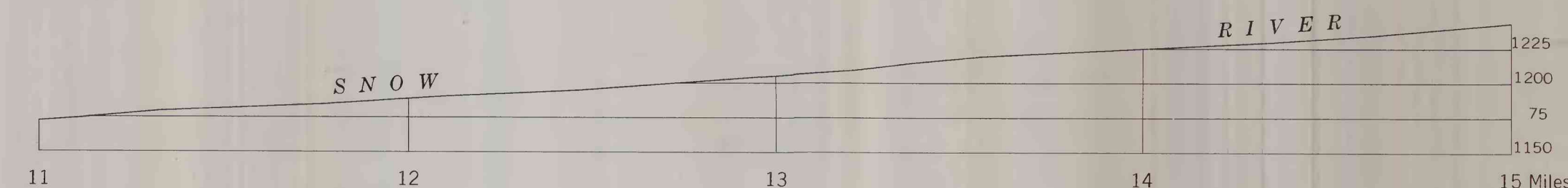
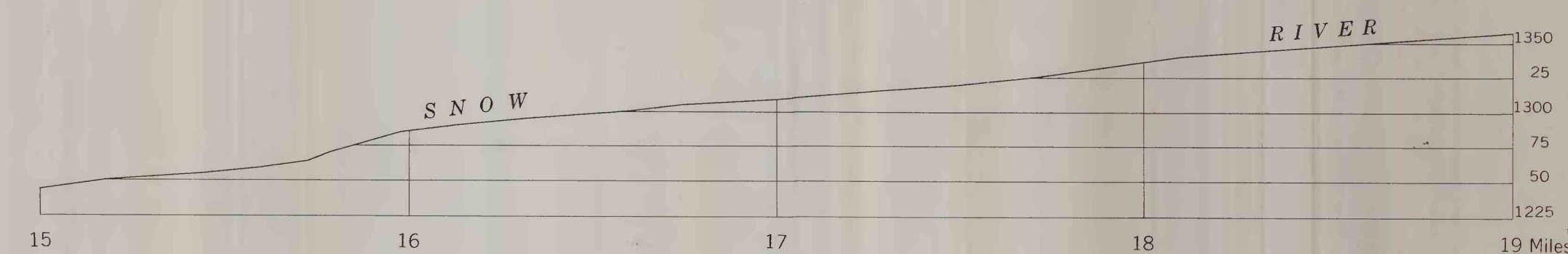
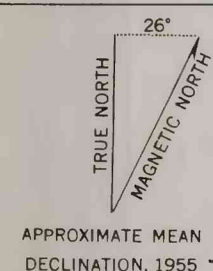
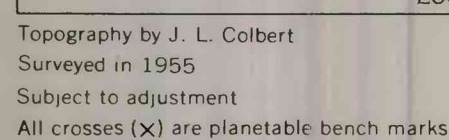
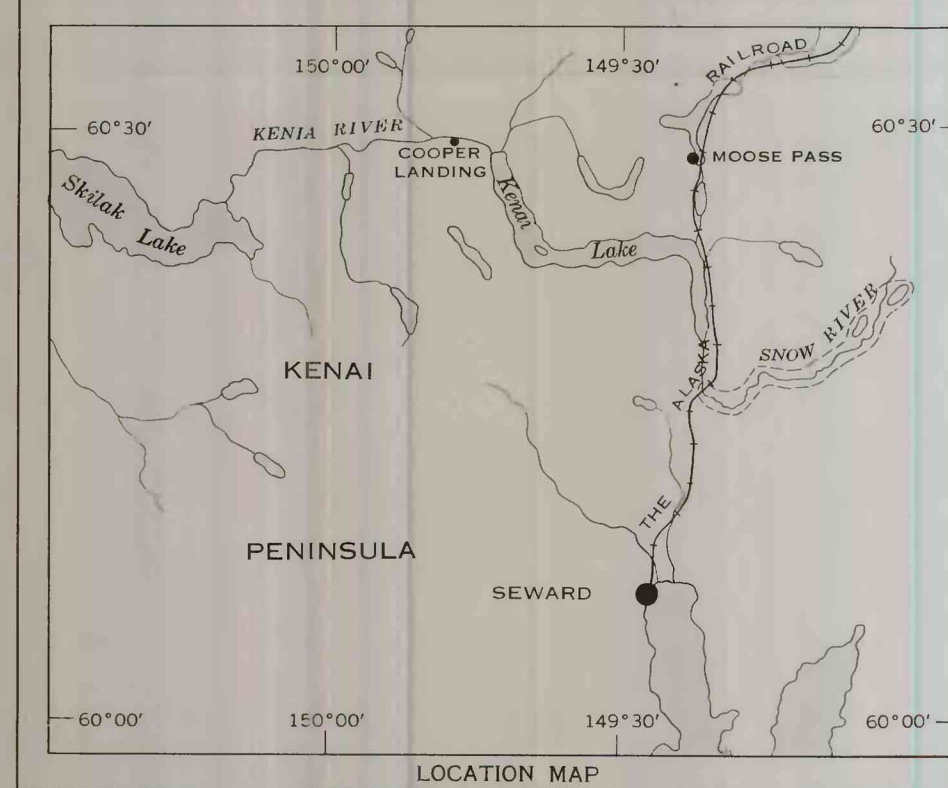
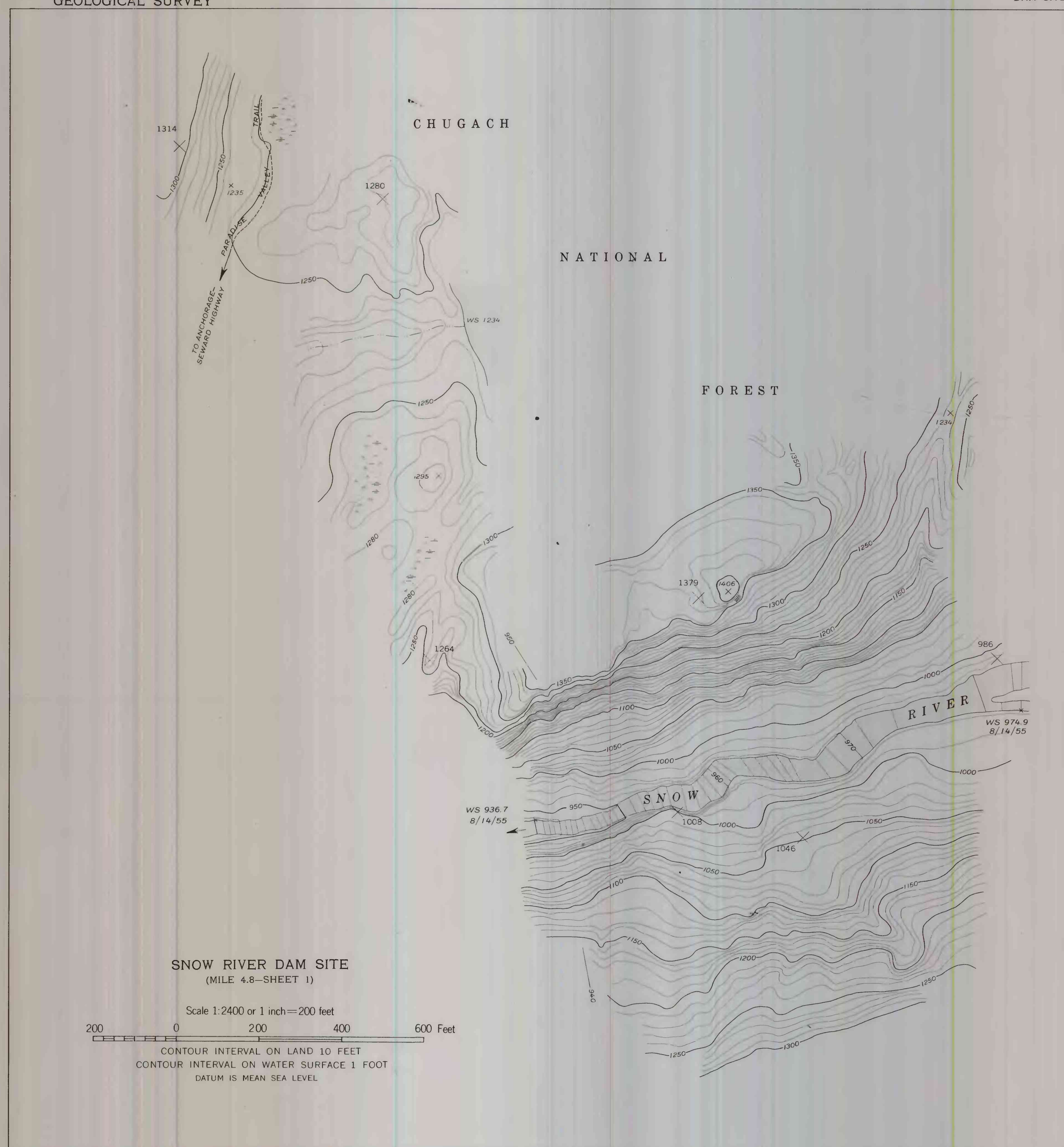


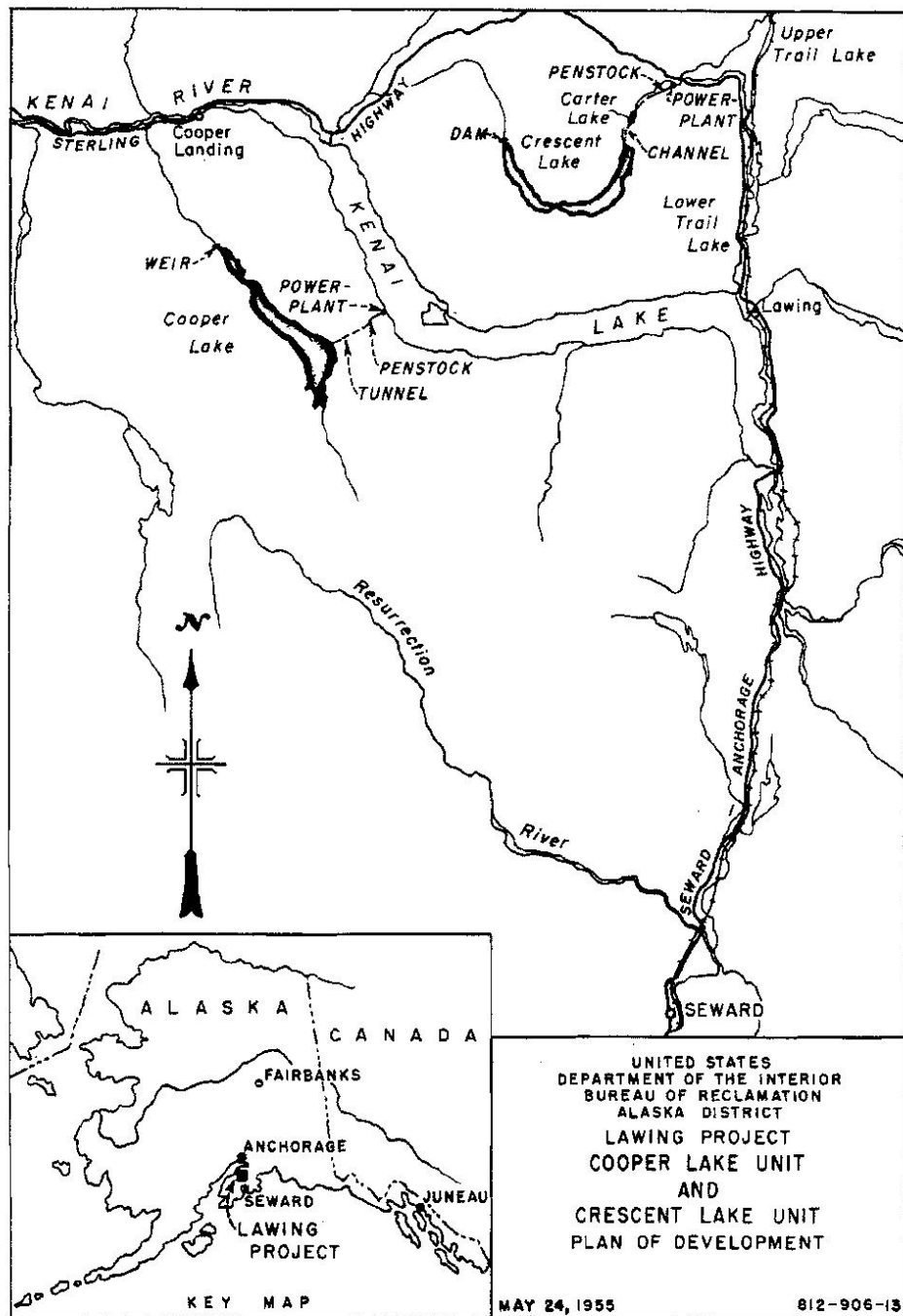
INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C. 20515-8500

1 plan sheet  
1 profile sheet  
showing dam site

SNOW RIVER,  
ALASKA  
1955  
SHEET 1

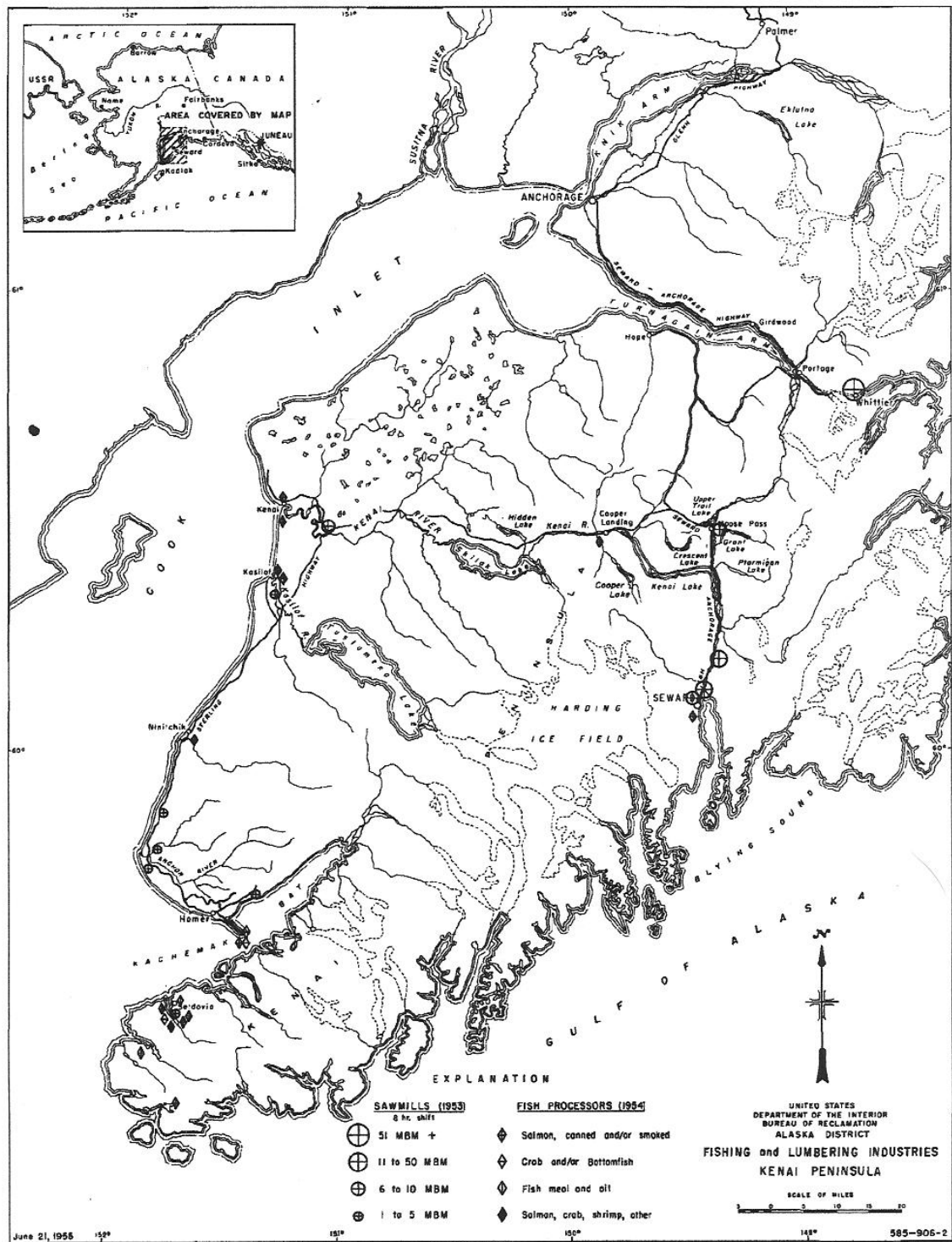




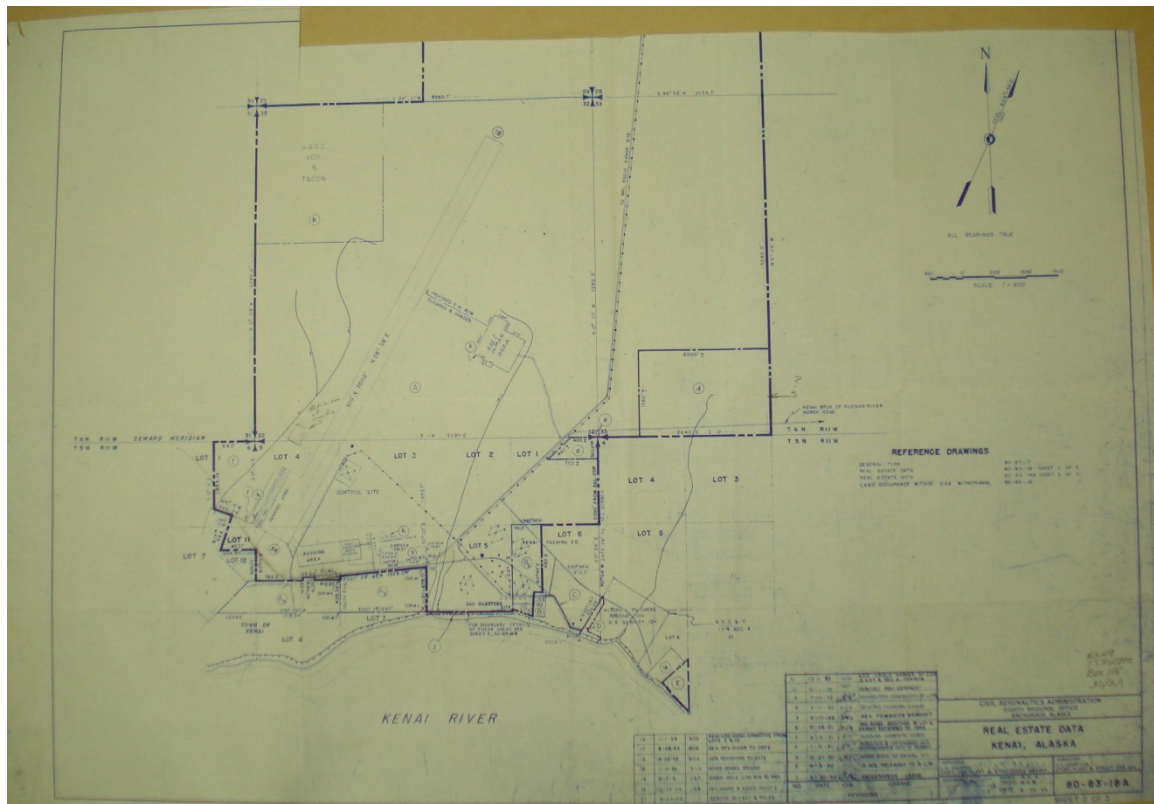


Map 85: Bureau of Reclamation, 1955, "Lawing Project, Cooper Lake Unit and Crescent Lake Unit Plan of Development." Source: Bureau of Reclamation (1955) Status report on the Lawing project, Alaska; Juneau: US Dept. of Interior, Bureau of Reclamation; 50 pgs.





Map 86: Bureau of Reclamation, 1955, "Fishing and Lumbering Industries, Kenai Peninsula." Companion to Fig. 24. Source: Bureau of Reclamation (1955) Status report on the Lawing project, Alaska; Juneau: US Dept. of Interior, Bureau of Reclamation.



Map 87: Civil Aeronautic Administration, 1955, "Real Estate Data, Kenai, Alaska." Author's photo of original on file at the National Archives and Records Administration (NARA) office in Anchorage, 31 Jul 2009. This shows land withdrawn by the federal government in 1942 for establishment of the airport and related infrastructure.



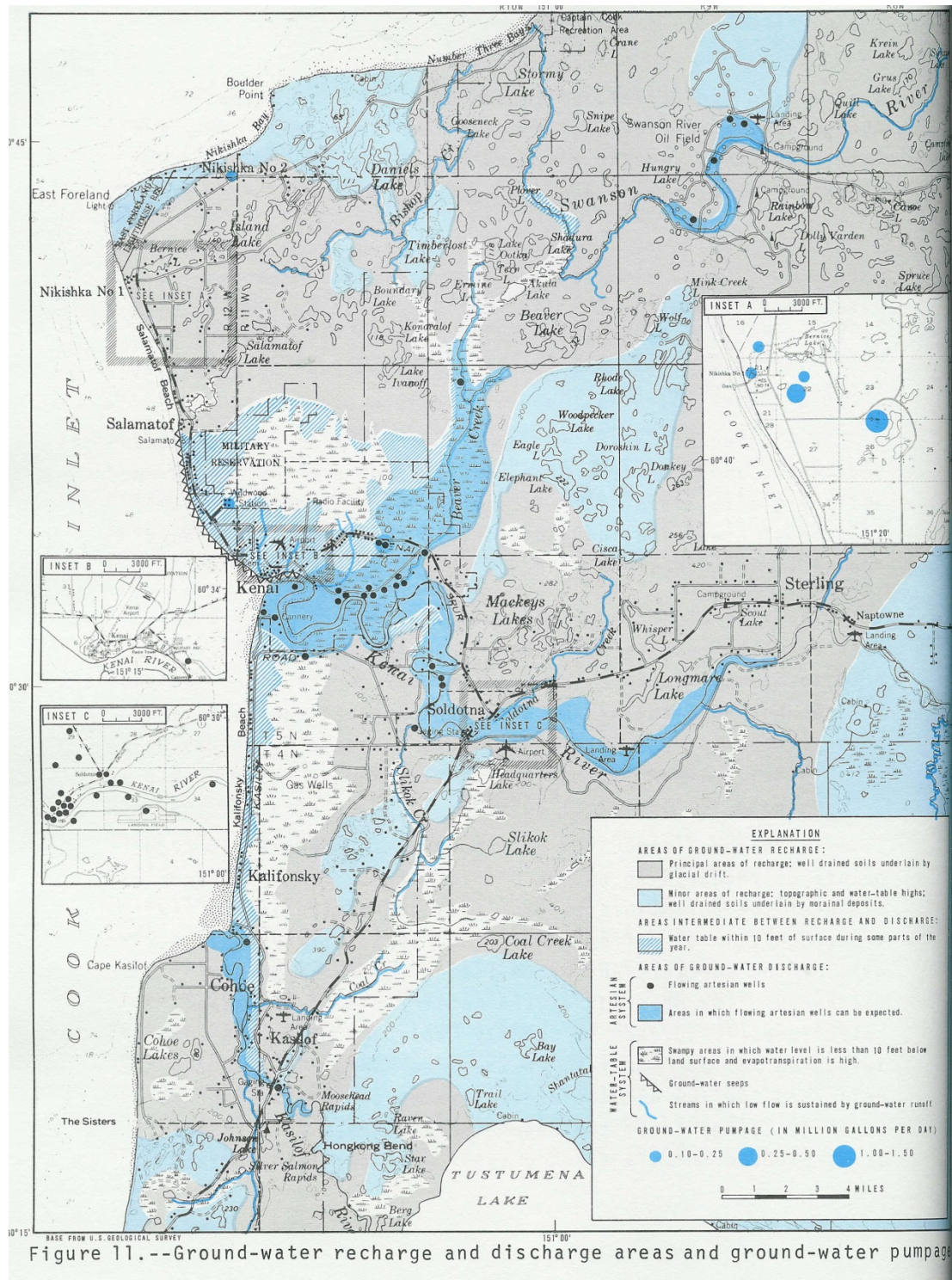
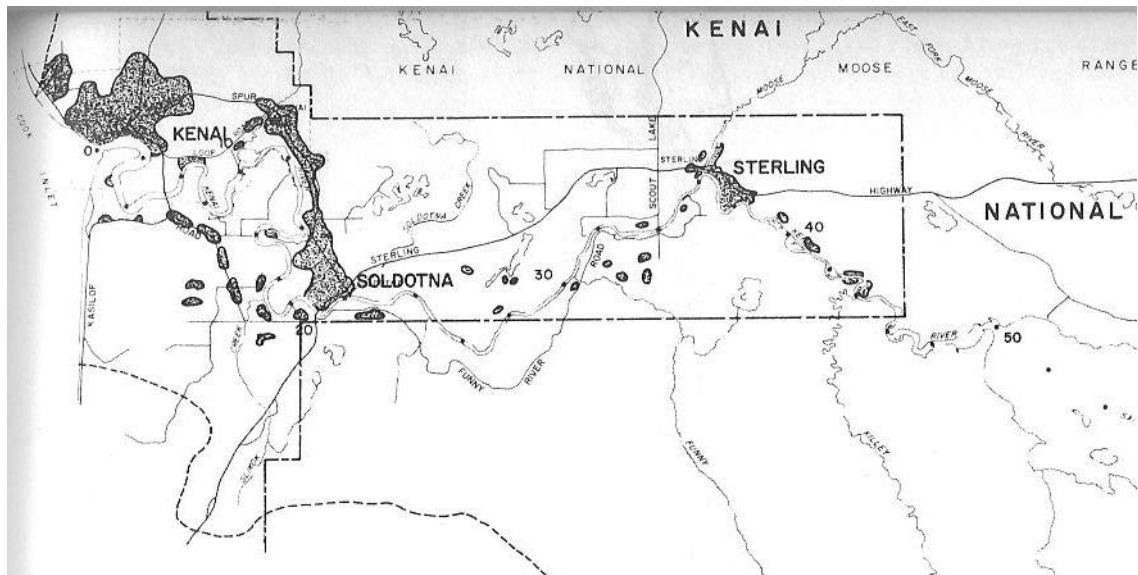


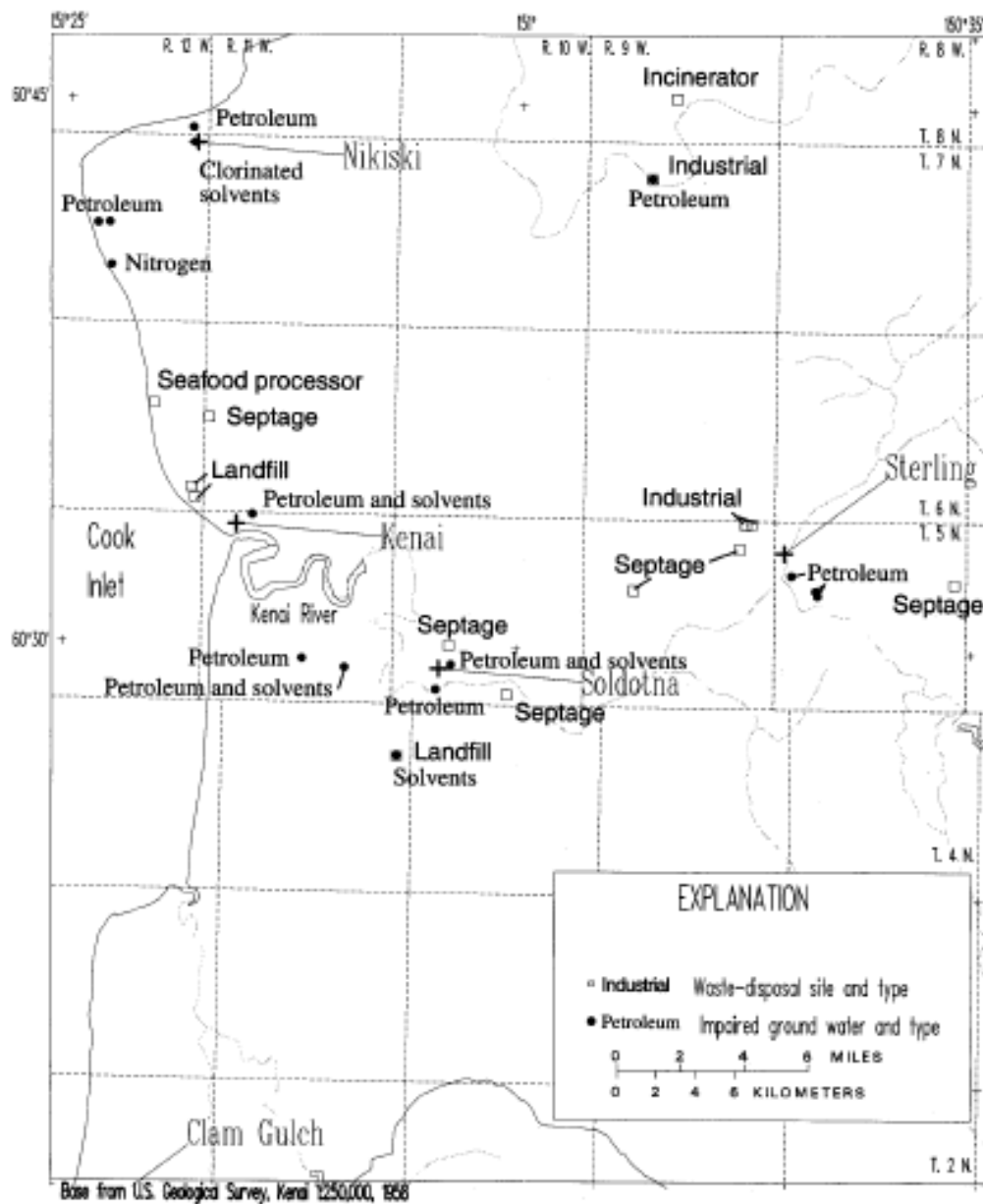
Figure 11.--Ground-water recharge and discharge areas and ground-water pumpage

Map 88: Anderson and Jones, 1972 (USGS), "Ground-water recharge and discharge area and ground-water pumpage." Source: Anderson, Gary S; Stanley H Jones (1972) Water resources of the Kenai-Soldotna area, Alaska; US Geological Survey; 81 pgs



Map 89: USACE, 1977, developed areas of the lower Kenai River corridor. This is a companion to the map shown in Fig. 77. Source: US Army Corps of Engineers, Alaska Corps of Engineers. 1978. Kenai River Review. Soldotna: Kenai Peninsula Borough.





**Figure 9A.** Waste-disposal sites and locations of impaired ground water, upper Kenai Peninsula. [Waste-disposal data from Harding Lawson Associates (1989, appendix C); impaired ground-water data from Alaska Department of Environmental Conservation (1992, appendix 1.)]

Map 90: Glass, USGS, 1996, "Waste-disposal sites and locations of impaired ground water, upper Kenai Peninsula." Source: Glass, Roy L. 1996. Ground-Water Conditions and Quality in the Western Part of Kenai Peninsula, Southcentral Alaska. Open File Report 96-466. USGS. Pg. 24

# LANDSTATUS OF THE KENAI NATIONAL WILDLIFE REFUGE, 2003

## MILEAGE ESTIMATES FOR ROADS AND TRAILS

Roads		
	Total	KNWR
Main Highway	356 miles	17 miles
Secondary Roads	1,621 miles	88 miles
Logging Roads	375 miles	0 miles
Oilfield Roads	100 miles	77 miles
Trails		
Trails	447 miles	87 miles
Seismic Lines	1,523 miles	679 miles

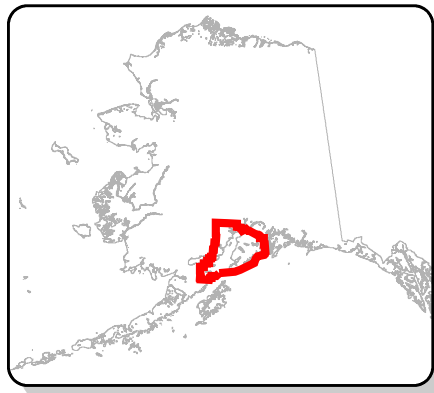
## 2002 POPULATION

### ESTIMATES

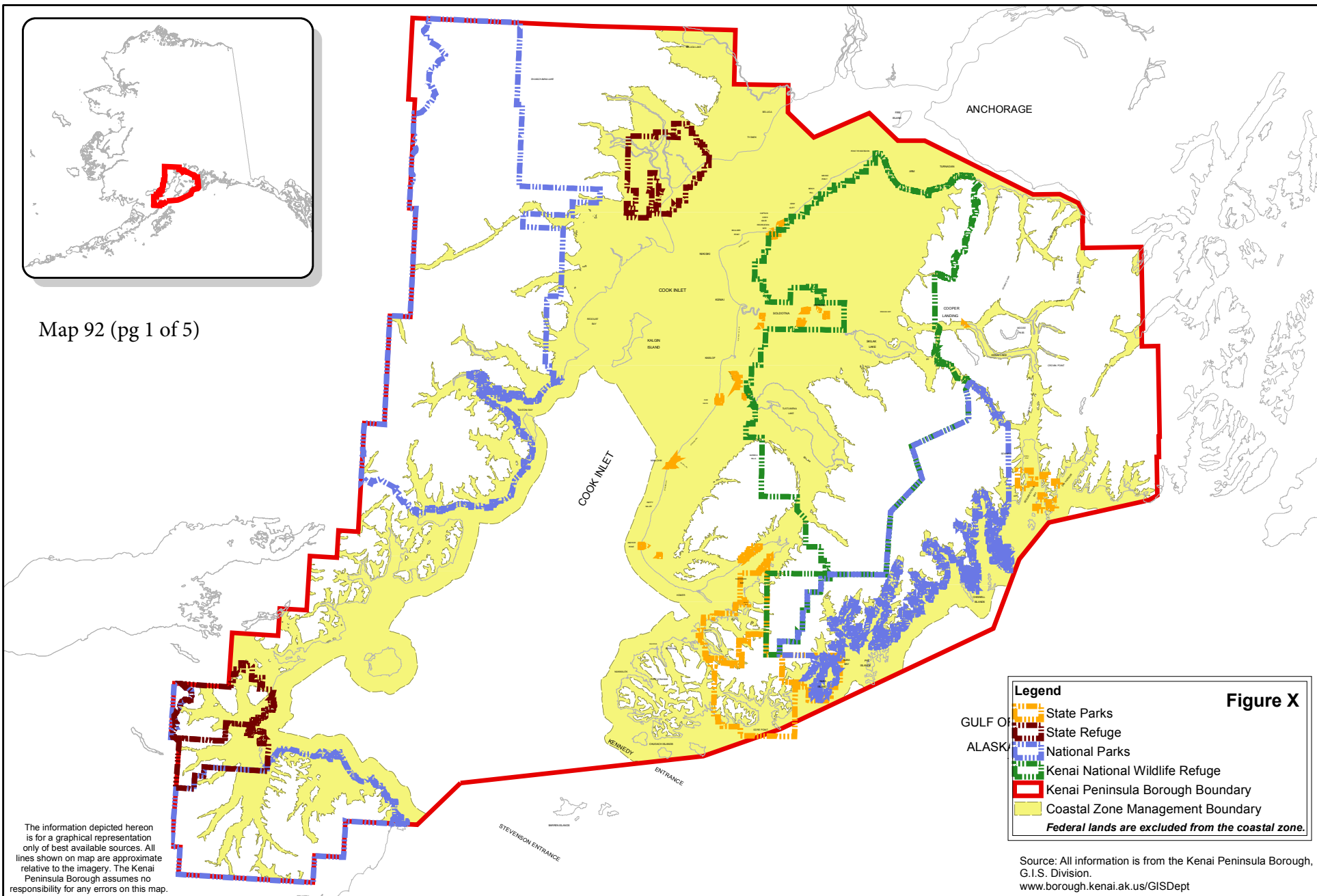
Anchor Point	1,842
Clam Gulch	177
Cooper Landing	375
Fox River	577
Fritz Creek	1,757
Funny River	698
Homer	4,721
Hope	155
Kasilof	508
Kenai	7,166
Nikiski	4,409
Ninilchik	779
Seward	2,794
Soldotna	3,944
Sterling	4,905



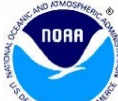




Map 92 (pg 1 of 5)



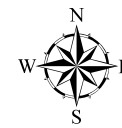
## PARKS, RECREATION SITES AND REFUGE AREAS WITHIN THE KENAI PENINSULA BOROUGH



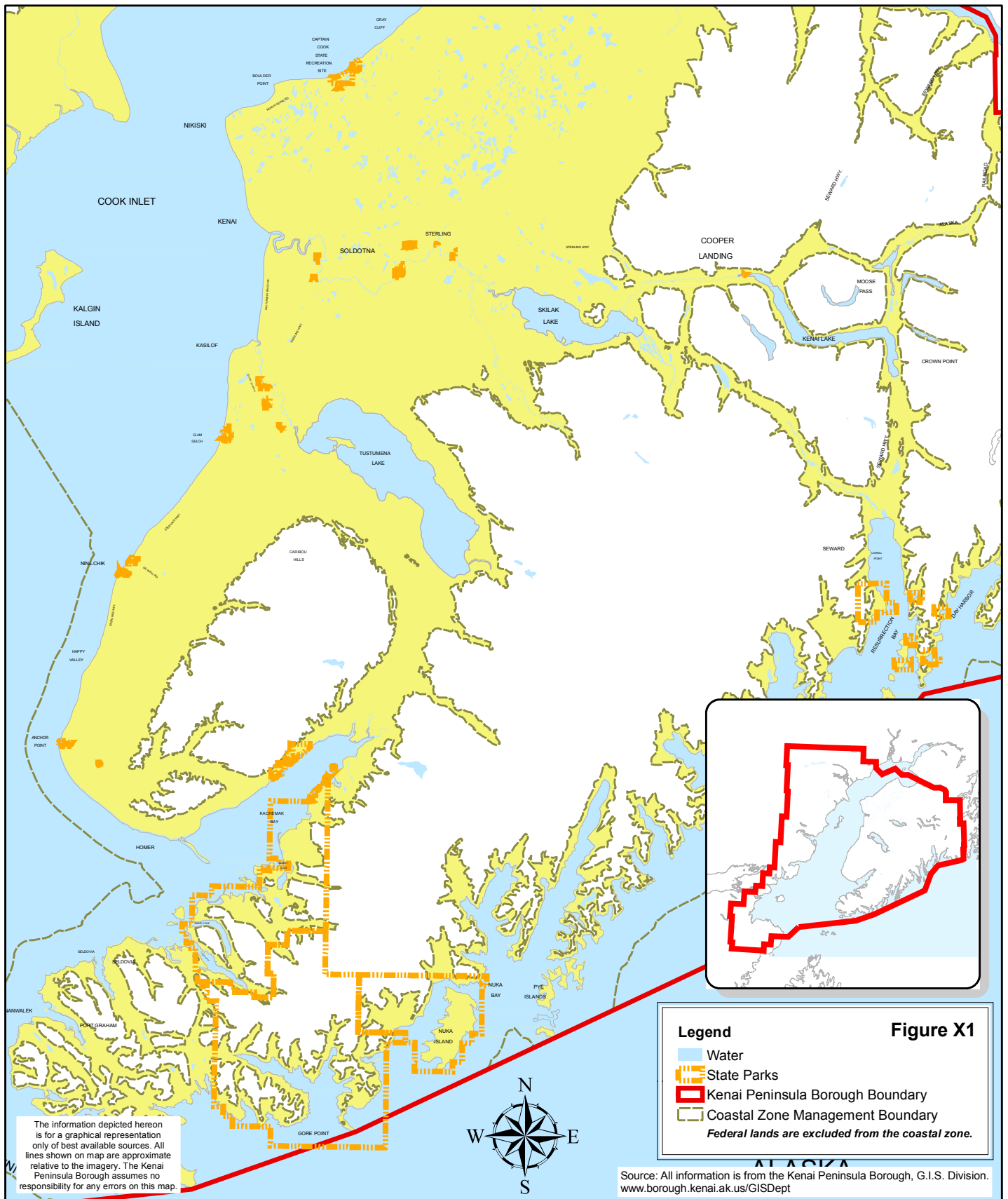
GIS Division

0 12.5 25 50 75 100 Miles

Funding for this publication was provided by the Alaska Coastal Management Program under the Coastal Zone Management Act of 1972, as amended in 1990 and 1996, administered by the Office of Ocean and Coastal Resource Management, U.S. Department of Commerce.



DATE: FEBRUARY 6, 2006



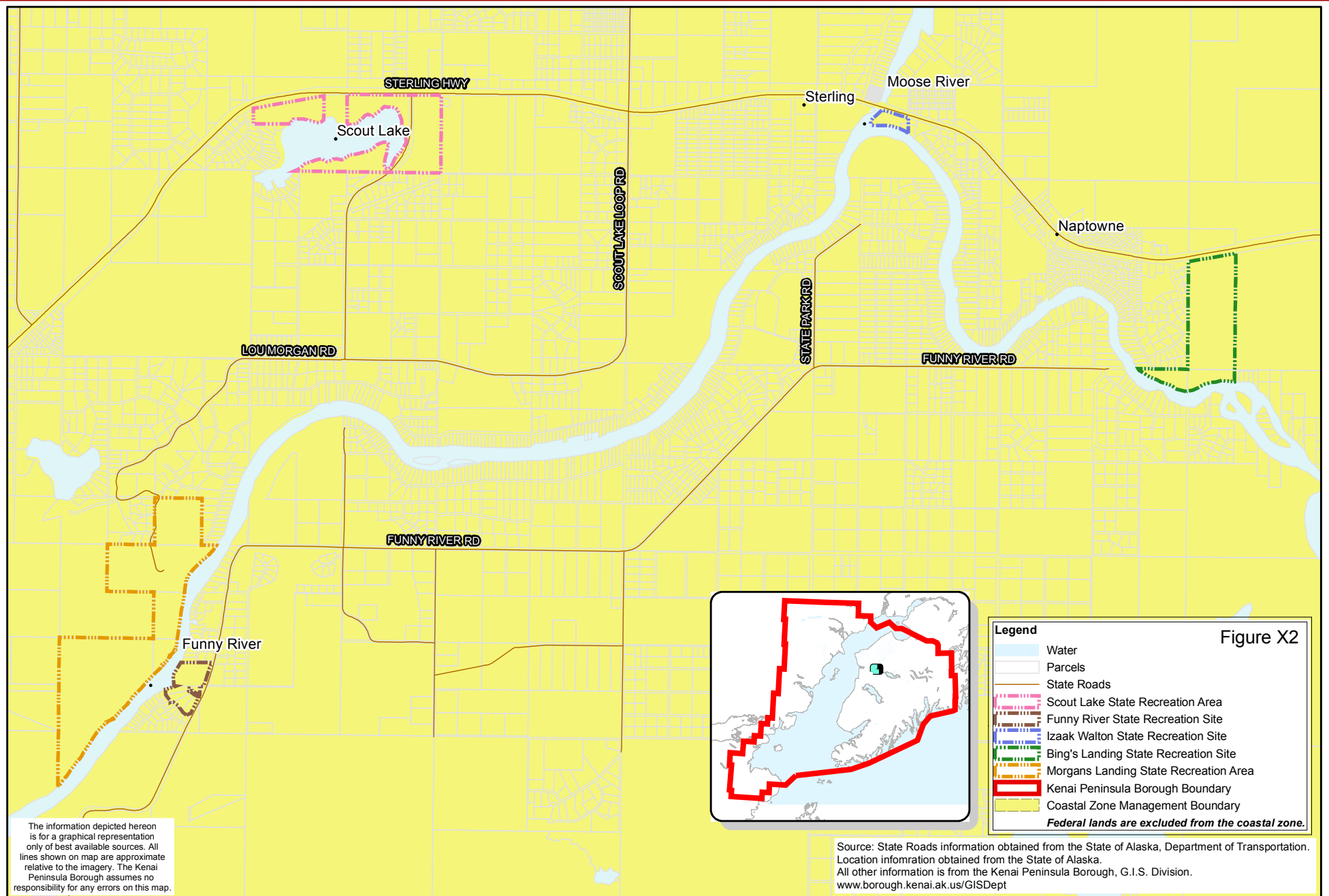
## STATE PARKS

0 5 10 20 30 40 Miles

Funding for this publication was provided by the Alaska Coastal Management Program under the Coastal Zone Management Act of 1972, as amended in 1990 and 1996, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

DATE: FEBRUARY 6, 2006





GIS Division



ALASKA COASTAL MANAGEMENT PROGRAM



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
U.S. DEPARTMENT OF COMMERCE

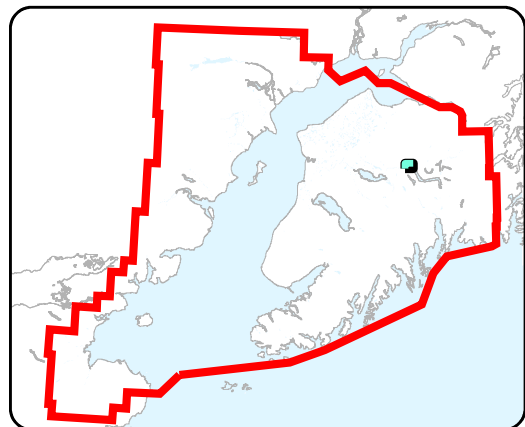
## STERLING AREA STATE PARKS

0 0.25 0.5 1 1.5 2 Miles

Funding for this publication was provided by the Alaska Coastal Management Program under the Coastal Zone Management Act of 1972, as amended in 1990 and 1996, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.







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Map 92 (pg 4 of 5)

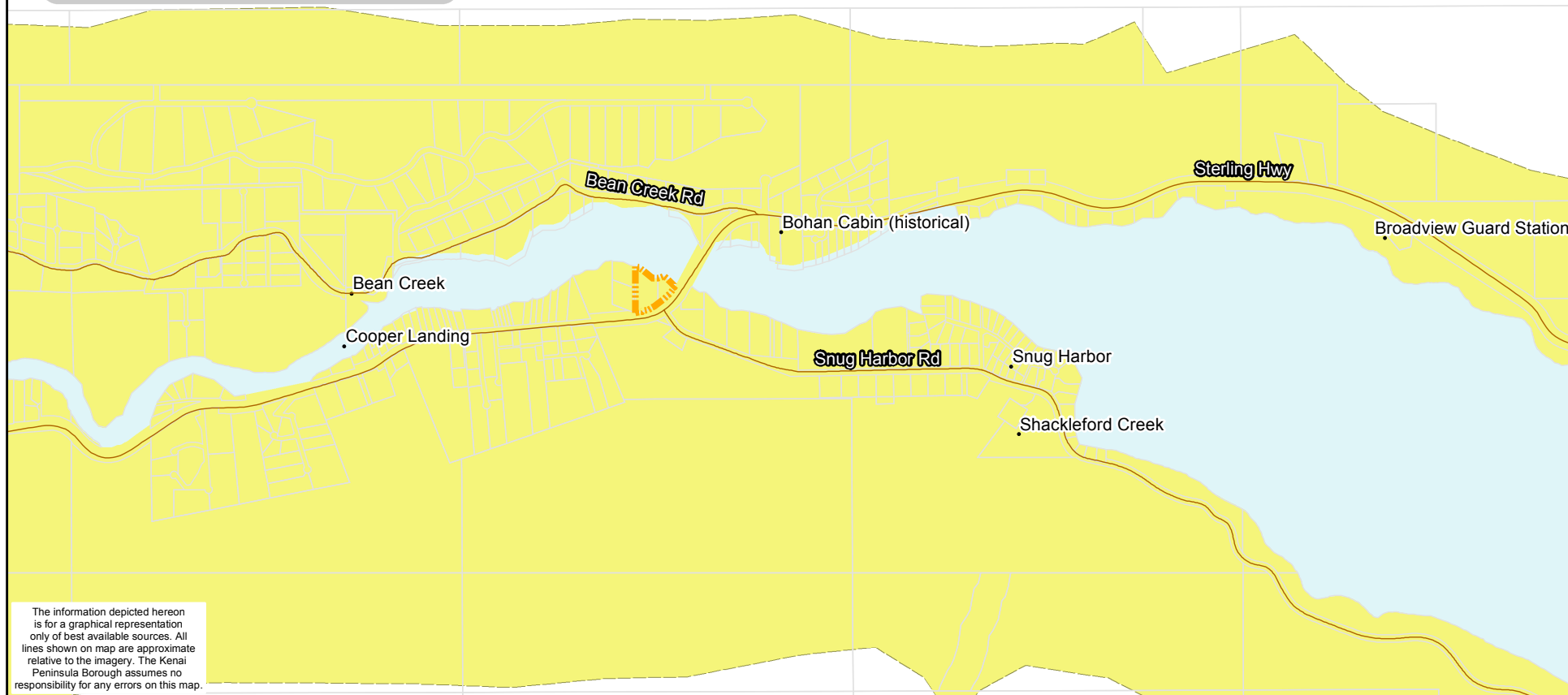
# Legend

Figure X3

-  Water
-  Parcels
-  State Parks
-  State Roads
-  Kenai Peninsula Borough Boundary
-  Coastal Zone Management Boundary

*Federal lands are excluded from the coastal zone.*

Source: State Roads information obtained from the State of Alaska, Department of Transportation. Location information obtained from the State of Alaska. All other information is from the Kenai Peninsula Borough, G.I.S. Division.  
[www.borough.kenai.ak.us/GISDept](http://www.borough.kenai.ak.us/GISDept)



The information depicted hereon is for a graphical representation only of best available sources. All lines shown on map are approximate relative to the imagery. The Kenai Peninsula Borough assumes no responsibility for any errors on this map.

## KENAI LAKE OUTLET STATE RECREATION SITE

0 0.1250.25 0.5 0.75 1 Miles



GIS Division



ALASKA COASTAL MANAGEMENT PROGRAM



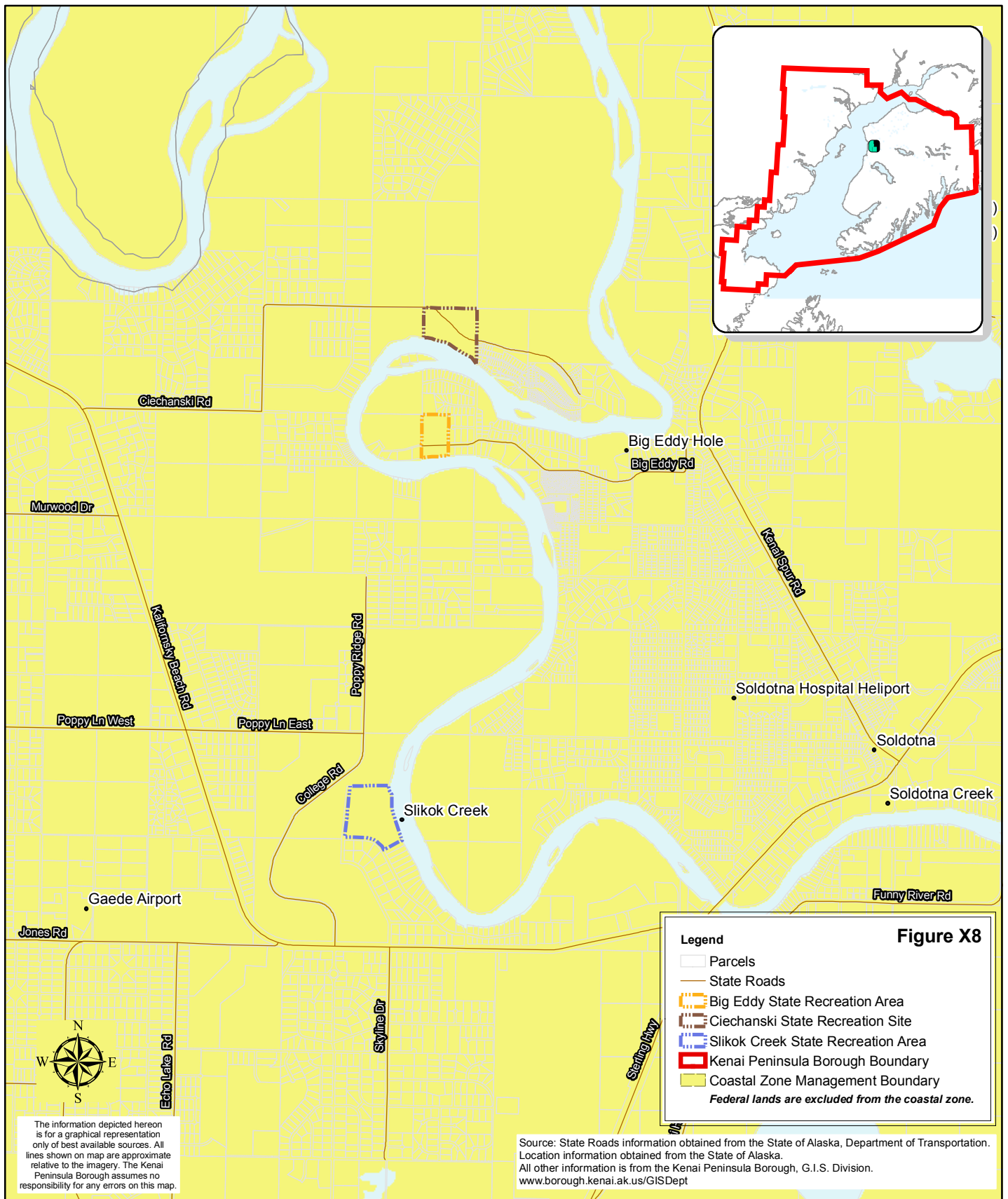
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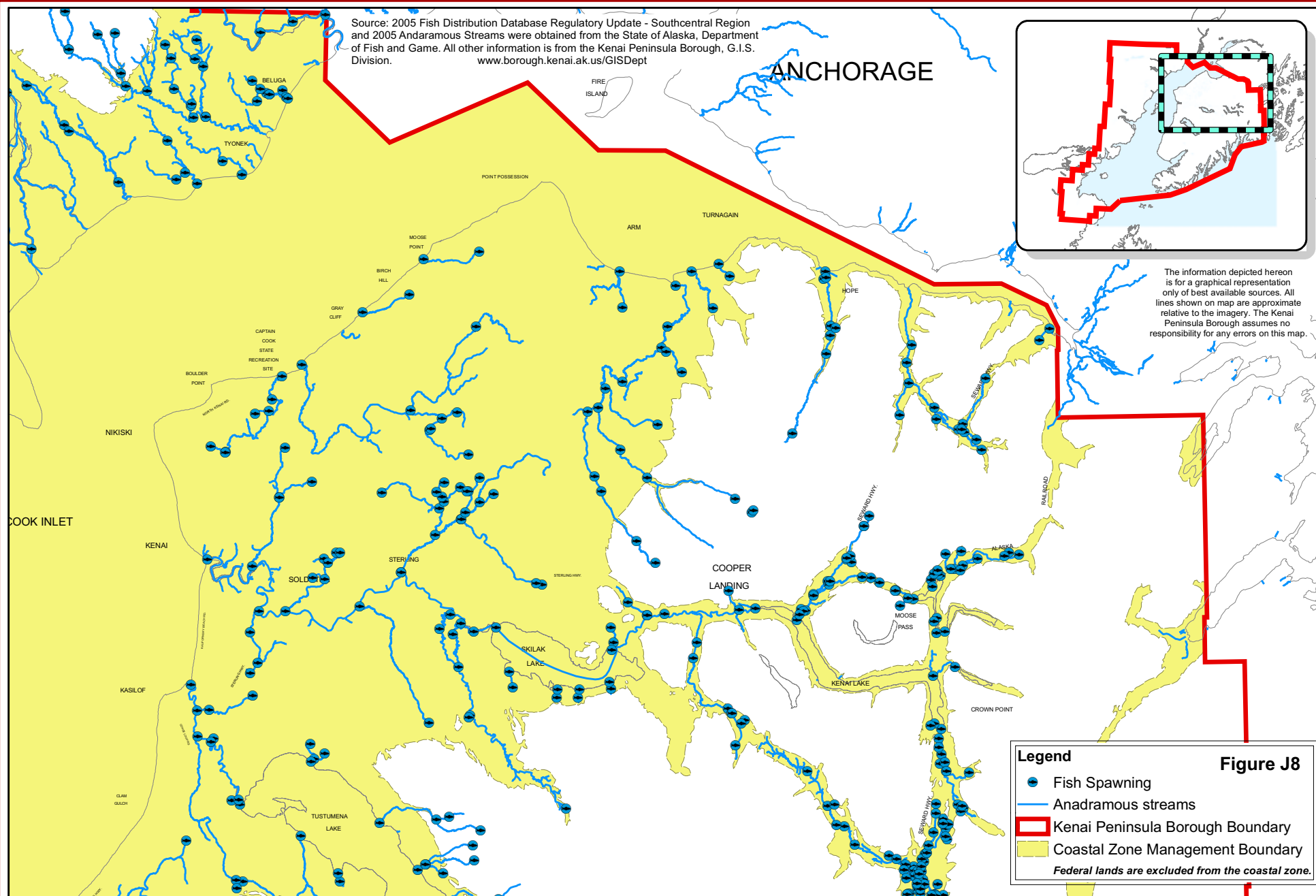


DATE: FEBRUARY 6, 2006





Source: 2005 Fish Distribution Database Regulatory Update - Southcentral Region and 2005 Anadromous Streams were obtained from the State of Alaska, Department of Fish and Game. All other information is from the Kenai Peninsula Borough, G.I.S. Division.  
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## SPAWNING OF FISH IN THE NORTHEAST PORTION OF THE KENAI PENINSULA BOROUGH

0 5 10 20 30 40 Miles



GIS Division



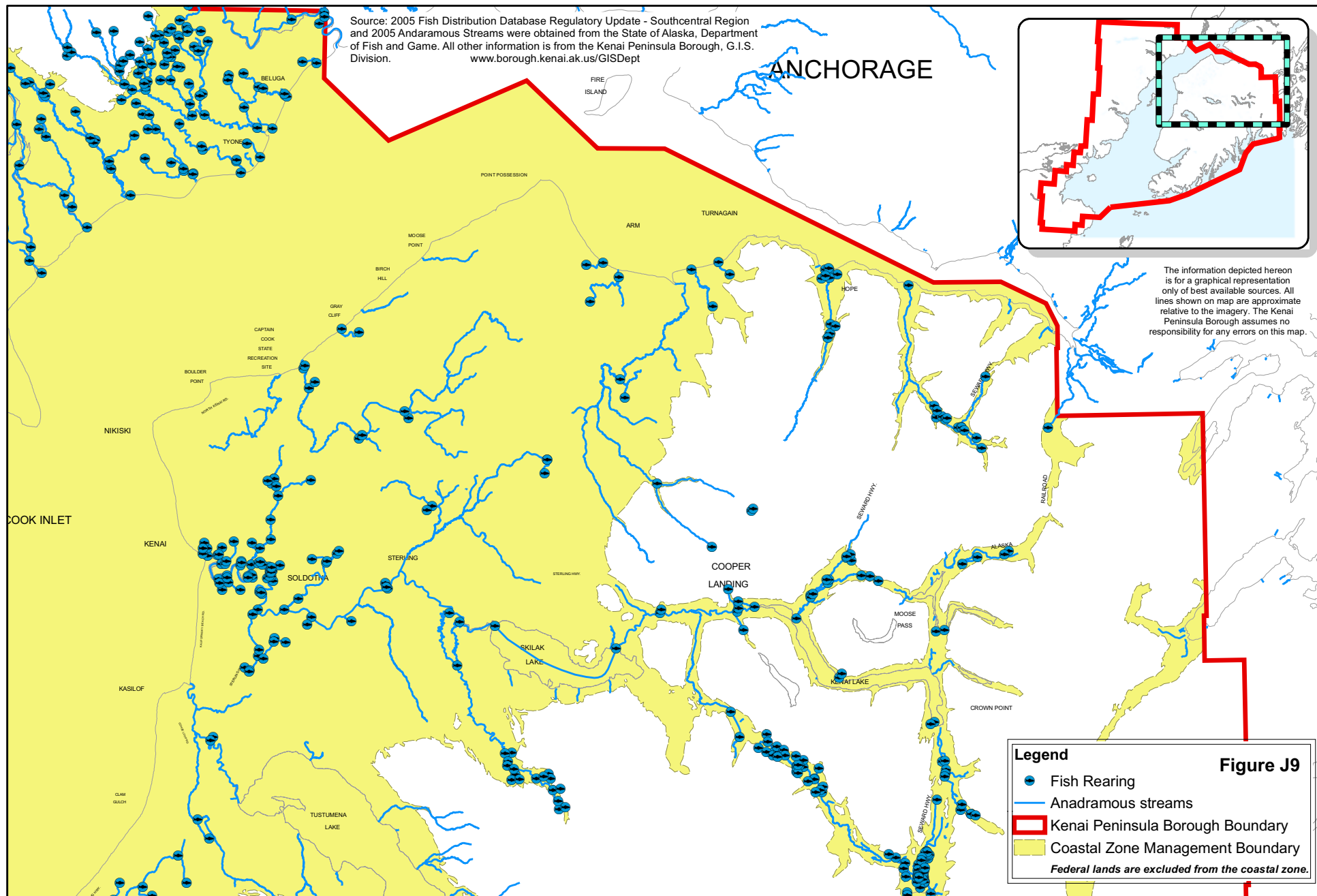
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DATE: FEBRUARY 8, 2006



Source: 2005 Fish Distribution Database Regulatory Update - Southcentral Region and 2005 Andaramous Streams were obtained from the State of Alaska, Department of Fish and Game. All other information is from the Kenai Peninsula Borough, G.I.S. Division.  
www.borough.kenai.ak.us/GISDept



## REARING OF FISH IN THE NORTHEAST PORTION OF THE KENAI PENINSULA BOROUGH

0 5 10 20 30 40 Miles



GIS Division



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